U-View Limited

General Information

Also Covers
HR-A630 & HR-A631

Matrix

Item	See Model	Book
OSD Diagram	HR-J 435	6

Service Notes

CASSETTE HOUSING INSTALLATION

NOTE: Observe the mechanical phase and position (see figure) when installing the cassette housing assembly. If these are incorrect, the system will not operate properly even when tape is inserted.

1. Check that the hole of the control cam are aligned to the deck hole. If necessary, turn the mode motor belt by hand to adjust the position.

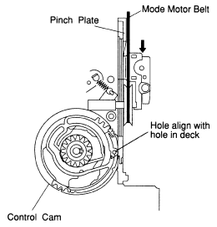

Fig. 1-4-1

SERVICE POSITION

How to take out the Mechanism and Main board assemblies.

1) Remove the Top cover, Front panel assembly, CN1201 and CN1204 SW DISPLAY board assembly.
2) Take out 4 screws (A) 2 screws (B) and 1 screw (C) as shown in Fig.1-5-1.

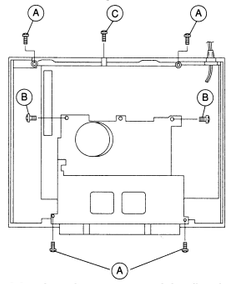

Fig. 1-5-1

3) Remove the Mechanism assembly (including Cassette housing) and Main board assembly out of the chassis as shown in Fig.1-5-2.

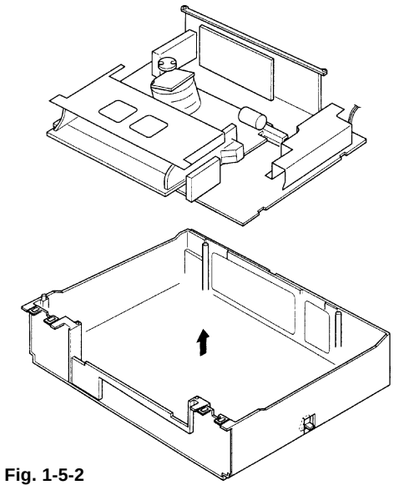

Fig. 1-5-2

5) Turn over the Mechanism assembly and Main board assembly then connect CN1201 and CN1204 of the SW/DISPLAY board assembly.
6) Carry out checks & repairs as necessary as shown in Fig.1-5-3.

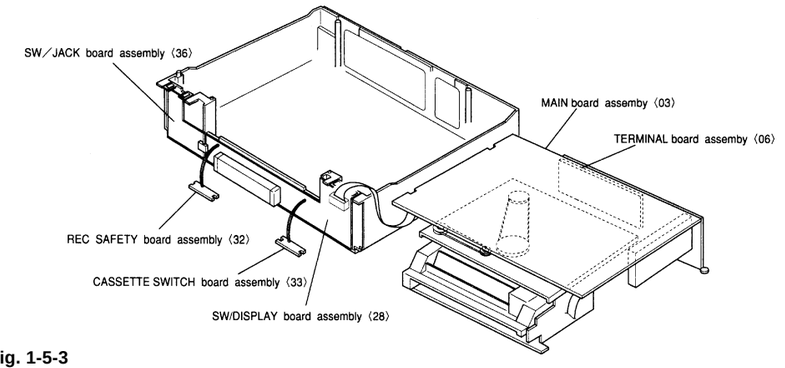
SW／JACK board assembly 〈36〉
MAIN board assembly 〈03〉
TERMINAL board assembly 〈06〉
REC SAFETY board assembly 〈32〉
CASSETTE SWITCH board assembly 〈33〉
SW/DISPLAY board assembly 〈28〉

Fig. 1-5-3

Cautions on cassette loading when mechanism is in service position

The REC SAFETY board assembly of this set serves both for detecting the safety tab (erasure prevention tab) of a cassette and detecting a cassette loaded. Therefore, cassette loading in the condition that the mechanism is disassembled from the set needs manual operation of the switches of the REC SAFETY board assembly and the CASSETTE SWITCH board assembly.

Cassette loading and ejecting procedures when mechanism is in service position

1) Insert a cassette tape halfway into the cassette housing assembly.
2) Press the switch of the REC SAFETY board assembly to turn on.
3) When the cassette loading begins and the cassette goes down to the bottom, immediately press the switch of the REC SAFETY board assembly to turn off and hold the status that the switch of the CASSETTE SWITCH board assembly is turned on. (Fix the switch with adhesive tape or put a screwdriver, etc. on it to leave the switch in the ON status.)

Note: When input the AUDIO/VIDEO signal from connector, connect CN1204 of the SW/JACK board assembly.

4) In this status, desired operations (recording, playback, fast forward, rewind, etc.) can be performed.

Note: When the mechanism is in the service position, the safety tab of cassette tape is not detected and recording on cassette tapes without safety tab is possible.
Therefore, carefully choose a cassette tape for operation in this mode so as to avoid using cassette tapes of important recording.

(5) For ejecting the cassette in this status, do it in the reverse order of cassette loading mentioned above.

Note: If the manual operation REC SAFETY switch timing is incorrect, the cassette may be completely or partially elected, and the cassette is often ejected incompletely. In such a case, it is possible to take out the cassette by hand.

If it is desired to load a cassette again after the cassette is ejected in the above procedure, make sure to set the tray of the cassette housing assembly in the frontmost position prior to loading the cassette once again.

Opening on the chassis.
The chassis assembly has openings for easy access to the checkpoints and connector pins as shown in Fig.1-5-4.

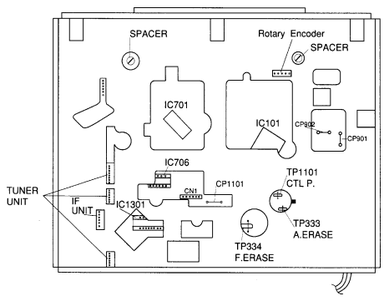

Fig. 1-5-4

MECHANISM SERVICE MODE

This model has a unique function to enter the mechanism into every operation mode without loading of any cassette tape. This function is called the MECHANISM SERVICE MODE.

How to set the MECHANISM SERVICE MODE

1) Disconnect VCR from AC.
2) Remove the Top cover, Front panel assembly and cassette housing assembly.

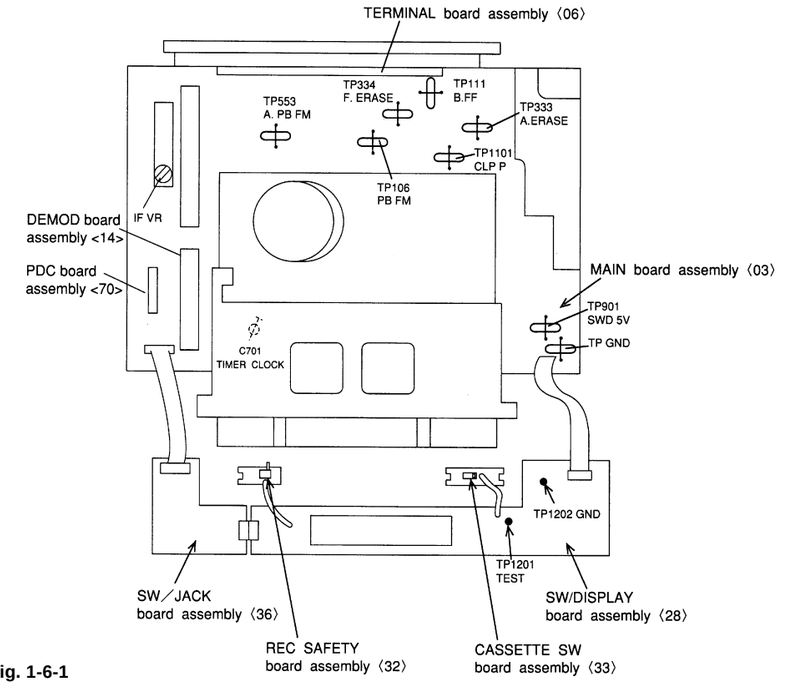

Fig. 1-6-1

3) Connect TP1202 (GND) and TP1201 (TEST) on the SW/DISPLAY board assembly with a jump wire.
4) Connect VCR to AC.
5) Press the POWER button.
6) Select the desired operation modes with the operation buttons or remote controller.

EMERGENCY DISPLAY FUNCTION

This product has the function to store the last two previous emergency faults which can be displayed in the FDP when servicing.

How to display record of an emergency faults

1) Press “N” button of the presetting unit more than 2 seconds. and the two previous emergency faults are shown in the FDP.
2) Press “N” button of the presetting unit again when return the normal mode.

(Example) E : 01 : 03 – Emergency faults before last
└ Emergency faults of the last time

(Example) E:--:-- —— No record of emergency

How to clear emergency record

Press the COUNTER RESET button on the remote controller in the emergency record display mode,and the record of the emergency fault(s) is cleared.

PREPARATION

Precautions

1) Disconnect VCR from AC power before soldering.
2) Avoid imparting stress to wires when disengaging connectors.
3) Determine and correct the cause of difficulty before proceeding to adjustments. Do not disturb settings unnecessarity.
4) Use care not to damage tabs,claws,etc during repairs.
5) Install the cassette housing assy only when the mechanism is in the MECHANISM ASSEMBLING MODE position.
6) When installing the Front panel assy,be sure to engage the housing door with the door opener of the cassette housing assy. If this is omitted,the cassette door will not open at Eject and the cassette can not be removed.

Check without cassette housing assy.
Mechanism operations can be observed easily by removing the cassette housing assy. Use the MECHANISM SERVICE MODE. When the deck enters the emergency mode with cassette tape loaded and it can not be ejected by pressing the EJECT button take out of the cassette tape according to the following procedure.

1) Disconnect the power cord from AC outlet then take out the Top cover and Front panel assy.

Detail of emergency faults

FDP	Symptom	Detect mode	Resulting mode
E:01	Loading motor rotates for more than 8 Sec without shift to next mode.	Loading	POWER OFF
E:02	Loading motor rotates for more than 8 Sec without shift to next mode.	Unloading	POWER OFF
E:03	TU REEL FG input is absent (for more than 4 Sec)	REC/PLAY/FF/REW	STOP → POWER OFF
		SEARCH FF/SEARCH	REW
E:04	DRUM FF input is absent (for more than 3 Sec)	REC/PLAY/FF/REW	STOP
		SEARCH FF/SEARCH	REW
E:06	CAPSTAN FG input is absent (for more than 1 Sec)	REC/PLAY/FF/REW	STOP → POWER OFF
F:07	No SWD5V/12V	POWER ON	POWER OFF

Table 1-7-1 EMERGENCY FAULTS

Recommended Safety Parts

Item	Part No.	Description
105	PEACO300-02	RE CABLE
106	PQ21953C-3	REMOTE CONTROLLER
110	PU30425-1790	INSTRUCTIONS
151	PQ11676-7	TOP COVER
159H	PDZ0141-1-2	STATOR ASSEMBLY
160	PQ11666-3-14	BOTTOM CHASSIS
161	PQ11668-2	BOTTOM COVER
173	QMP51K0-170	POWER CORD
177	PQ46485	SPACER(SAFETY)
61	PU60628-3-2	LOADING MOTOR
68	PU61487-2	CAPSTAN MOTOR
R957	QRZ0077-101X	FUSIBLE RESISTOR 100Ω 2,1/4W
C901	QFZ9022-333	F CAPACITOR 0.033μF
C9030	FZ9022-333	F CAPACITOR 0.033μF
C911	QCZ9026-222	CAPACITOR 0.0022μF
CF701	PEVB0594-Z	RESONATOR
Xl	PEVB0658	CRYSTAL RESONATOR
X701	PEVB0422	CRYSTAL RESONATOR
PC901	P52561L-1(WL)	PH COUPLER
T301	PELN0860	OSC TRANSFORMER
T302	PELN0861	OSC TRANSFORMER
T901	PELN1173	SW TRANS
HS1	P045788-1-1	HEAT SINK, Q901
TU2	PERF0258	IF UNIT
TU1001	PERF0201	TUNER UNIT
FC901	PEMC0965-Z	FUSE CLIP
FC902	PEMC0965-Z	FUSE CLIP
LF901	PELN1204	LINE FILTER
LF902	PELN0876	LINE FILTER
CN901	PU60250-2	CONNECTOR, (1-2)AC IN
CP701	ICP-N25	CIRCUIT PROTECTOR
CP901	ICP-N20	CIRCUIT PROTECTOR
CP902	ICP-N25	CIRCUIT PROTECTOR
CP1101	ICP-N15	CIRCUIT PROTECTOR
F901	QMF51E2-1R25J1	FUSE T1.2A
X1502	PEVB0660	CRYSTAL RESONATOR
X1901	PEVB0551	CRYSTAL RESONATOR
106	REMOTE CONTROLLER	PQ219530-3PQ21 953F-3
110	INSTRUCTIONS	PU30425-1790 PU30425-1799
T301	OSC TRANSFORMER	PELN0860 PELN0832
T302	OSC TRANSFORMER	PELN0861
151	PQ11676-7	TOP COVER
159H	PDZ0141-1-2	STATOR ASSEMBLY
160	PQ11666-3-14	BOTTOM CHASSIS
161	PQ11668-2	BOTTOM COVER
173	QMP51K0-170	POWER CORD
177	PQ46485	SPACER (SAFETY)

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Mechanism Adjustments Cont'd

2) Turn the mode motor on the Main deck assy by hand in the unloading direction to where the pole base assy (supply and take-up) is positioned below the cassette tape. At that time, pay careful attention to the tape not to get soiled with grease.
3) Take out 4 screws of the cassette housing assy.
4) Remove the cassette housing with slackened tape and guard panel of cassette.
5) Wind up the tape by turning the reel hub(either supply or take-up side for convenience) from the bottom of the cassette, and remove the cassette tape.

MAIN MECHANISM PARTS

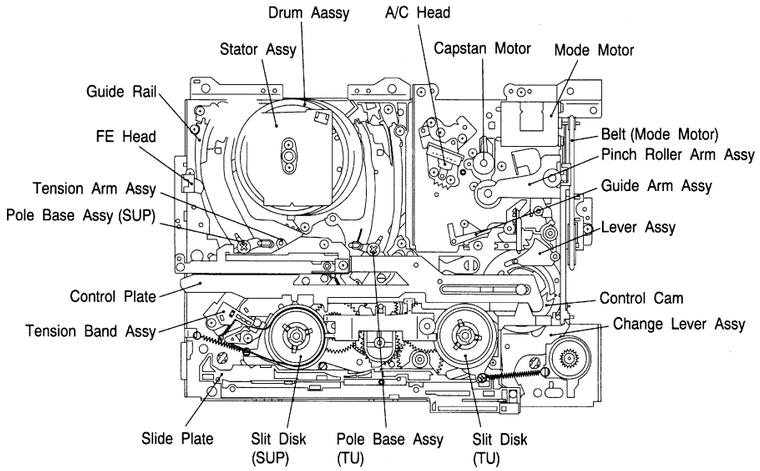

Fig. 2-2-1 Top view of main deck

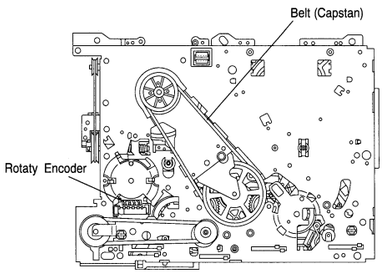

Fig. 2-2-2 Bottom view of main deck

Lubrication
Oil and grease do not normally require periodic replenishing. Apply only when replacing lubricated parts (also clean) and replace lubrication of mating parts if soiled). For parts and points to apply oil and grease, refer to the exploded views of the mechanism assy. Before oiling, clean with alcohol. Apply one or two drops of oil. Avoid excess oil.

1. Table 2-2-1 indicates the oil and grease used in this set. Use these or recommended locally available equivalents.

Category	Part No.
Oil	COSMO-HV56
Grease	KYODO-SH-P

Table 2-2-1

2. Grease is not required for a replacement cassette housing assy, as this has been applied at the factory.

Note: Stir grease that has been stored for an extended period.

DISASSEMBLY/ASSEMBLY PROCEDURE OF MECHANISM

Precaution before disassembling mechanism
This mechanism has an exclusive operation mode provided for disassembling and installation of to set the mechanism to this mode before disassembly and installationThe exclusive mechanism operation mode is not generally used and becomes available by manual setting only. Then this procedure starts with the condition that the cabinet parts,cassette housing assy and PRE/REC board assy have been removed.

How to set the exclusive mechanism operation mode (**MECHANISM ASSEMBLING MODE**)

1) Turn the mode motor belt by hand
2) Confirm that the hole of the control cam are aligned to the deck hole as shown in **Fig 2-4-1.**

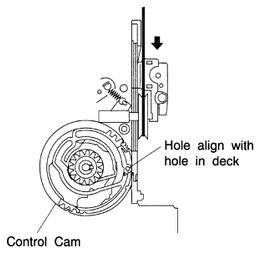

Fig. 2-4-1

MAIN PARTS REPLACEMENT OF MECHANISM

Pinch Rollar Arm ASSY
1) Remove the slit washer
2) Tilt up the pinch rollar assy in direction of arrow

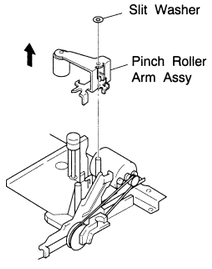

Fig.2-5-1

A/C Head
1. Removal
1) Take out 2 screws (A).
2) Remove the NC head with head base.

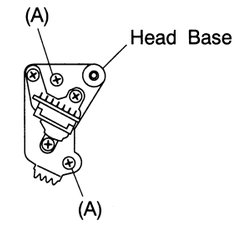

Fig. 2-5-2

3) When replacing the A/C head only, remove 3 screws (B), use care not to misplace the 3

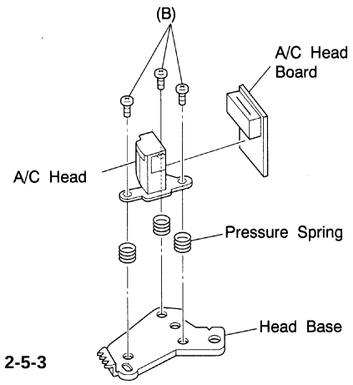

Fig. 2-5-3

2. Installation
1) Temporarily set NC head height as indicated in Fig. 2-5-4.

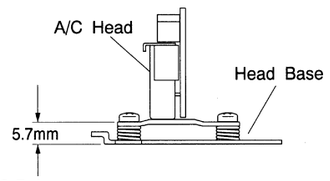

Fig. 2-5-4

NOTES:
It is very important to correctly adjust the control pulse and audio signal in addition to the mechanical tape path. Perform interchangeability adjustments after electrical adjustments.

Pinch Plate

1. Removal
1) Disengage 2 claws, then remove the pinch plate.

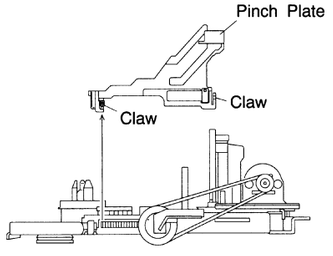

Fig. 2-5-5

2. Installation

1) When installing pinch plate,align rack of pinch plate and triangle mark of control cam as indicated in **Fig.2-5-6**.

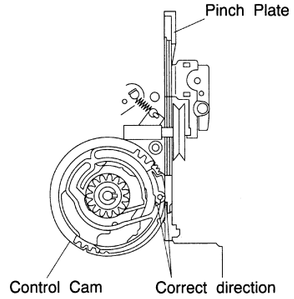

Fig. 2-5-6

Mode Motor

1) Disengage the belt between mode motor and worm gear.
2) Take out 2 screws (A) then remove the mode motor.

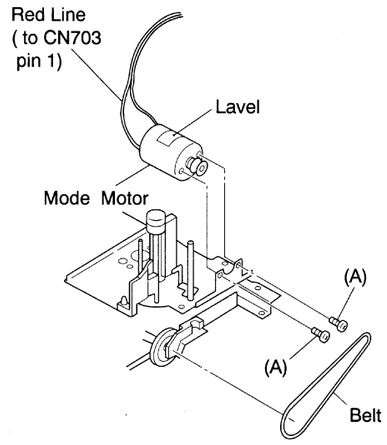

Fig. 2-5-7

Lever Assy,Sub Deck Assy,Capstan Motor

1) Take out 1 slit washer then remove the lever assy.
2) Disengage the belt (capstan motor) from bottom of mechanism assy first as indicated in **Fig. 2-5-10**.
3) Take out 3 screws (A) and remove the sub deck assy as indicated in **Fig. 2-5-8**.
4) Take out 3 screws (B) and remove the capstan motor from the sub deck assy as indicated in **Fig. 2-5-9**.

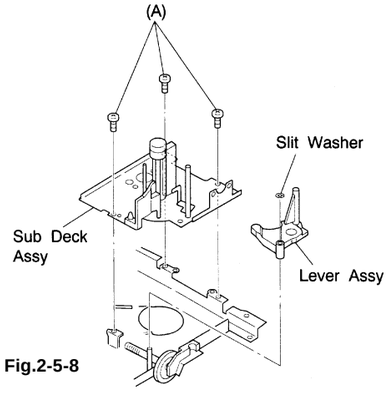

Fig.2-5-8

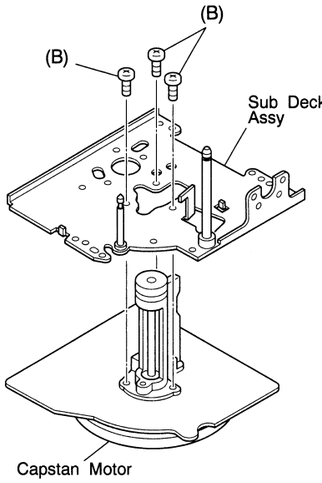

Fig. 2-5-9

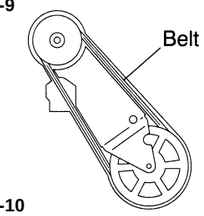

Fig. 2-5-10

Control Bracket - 1, Earth Plate

1) Take out 1 screw (A) and 1 screw (B).
2) Remove the control bracket -1 and earth plate.

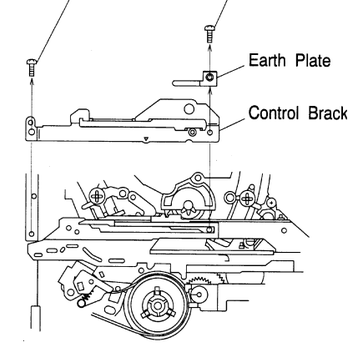

Fig.2-5-11

Reel Bracket,Slit disk (take-up)
1) Take out 2 slit washers.
2) Remove the reel bracket and slit disk(take-up).

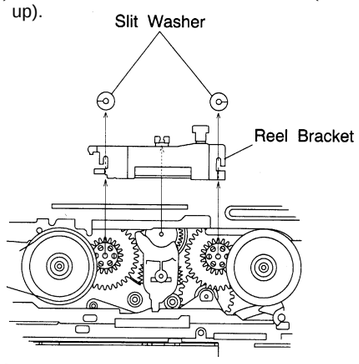

Fig.2-5-12

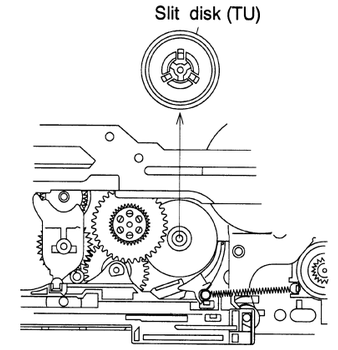

Fig.2-5-13

Control Bracket-2,Control Plate
1) Take out 1 screw (A) and remove the control bracket-2.
2) Take out 1 slit washer.
3) Disengage 2 claws and remove the control plate.

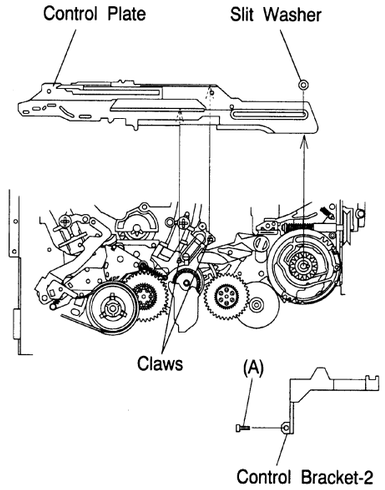

Fig.2-5-14

Sub Brake(take-up),Control Cam

1) Disengage 1 spring (a) and 1 claw then remove the sub brake (take-up).
2) Disengage 1 claw and remove the control cam.

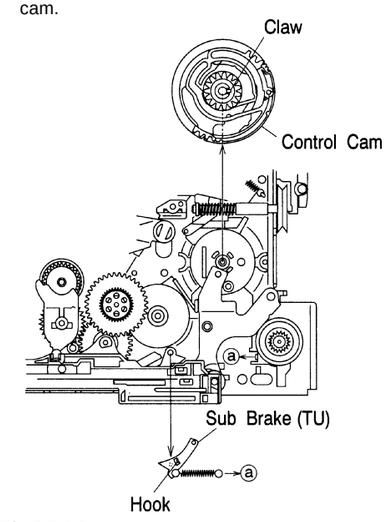

Fig.2-5-15

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Mechanism Adjustments Cont'd

Slide Plate

1) Disengage 7 claws from bottom of the mechanism assy and remove the slide plate.

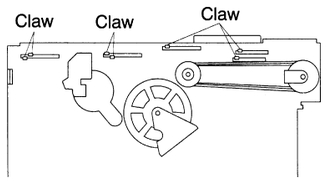

Fig. 2-5-16

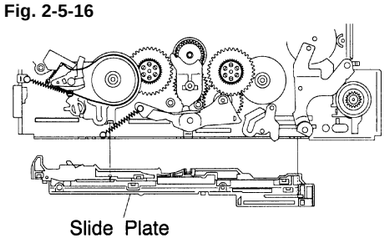

Fig. 2-5-17

Change Lever,Rotary Encoder
1) Remove the change lever.
2) Disengage 2 claws and remove the rotary encoder.

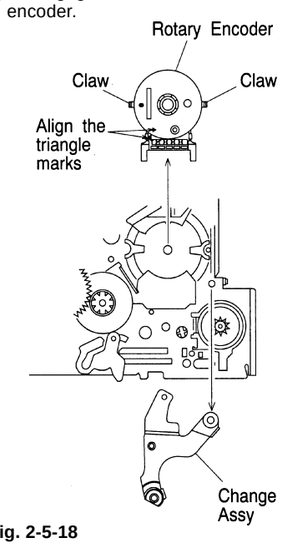

Fig. 2-5-18

Sub Brake (supply),Tension Band Assy,Tension Arm Assy,Take-up Lever Assy,Slit Disk(supply)

1) Disengage 1 spring (a).
2) Disengage 1 claw and remove the sub brake (supply).
3) Take out 1 screw (A),spring (c) and slit washer.
4) Remove the tension arm assy with tension band assy.
5) Disengage 1 spring (b) and remove the take-up lever assy.
6) Remove the slit disk(supply.

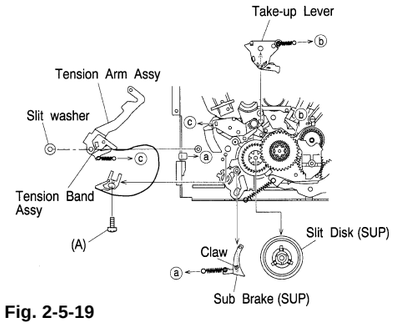

Fig. 2-5-19

Take-up Head,Tension Arm Lever
(1) Remove the take-up head and tension arm lever.

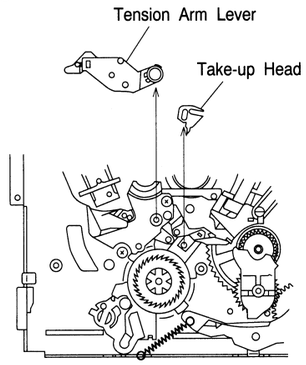

Fig .2-5-20

1) Take out 5 screws (A) and 1 screw (B).
2) Disengage 4 claws and remove the guide rail.

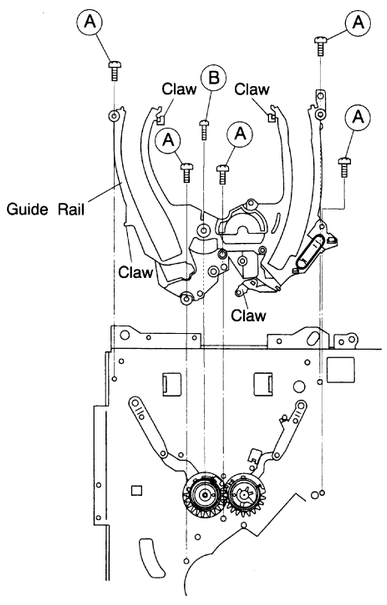

Fig. 2-5-21

Stator Assy

1) Take out 2 screws (A).
2) Raise the stator assy in the direction indicated by the arrow to remove it.
3) Remove the flat cable.
4)To reinstall,first secure the flat cable,then insert 2 screws (A).
5) After reinstalling, be sure to perform PB switching point adjustment (See SECTION 3 ELECTRICAL ADJUSTMENT).

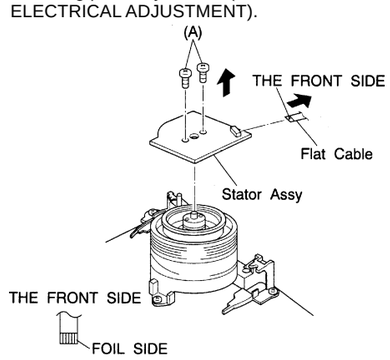

Fig. 2-5-22

NOTE: When refitting the connector, check that the flat wire is inserted correctly.

Rotor Assy
1) Remove the stator assy.
2) Take out 2 screws (B) and remove the rotor assy.

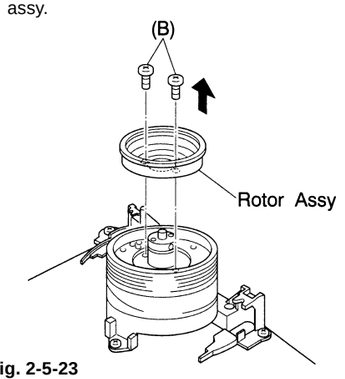

Fig. 2-5-23

3) Align the upper dum assy and rotor assy phase as indicated in Fig.2-5-22.
4) Overlap holes (a) of the upper drum assy with holes (b) of the rotor assy (align holes in 3 locations) and secure with 2 screws (B) as indicated in Fig.2-5-21.

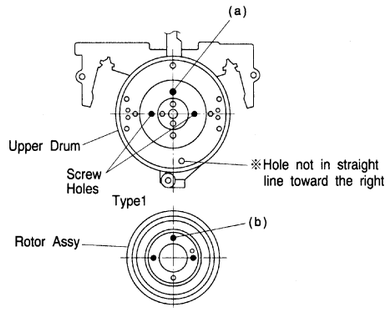

Fig. 2-5-24

Upper Drum Assy

1. Removal

1) Remove the stator assy and rotor assy.
2) Use a 1 .5 mm hexagonal wrench to loosen the collar assy screw and remove the collar assy.
3) Remove the upper drum assy and use tweezers to remove the Washer.

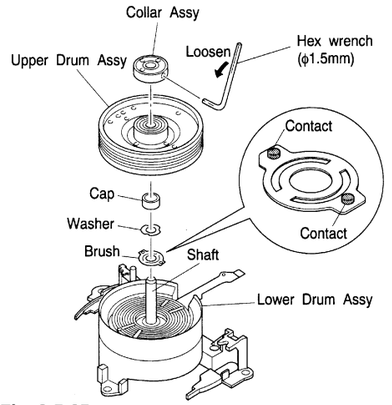

Fig. 2-5-25

NOTE: If the Brush is replaced, do not apply the grease to the contacts.

2. Installation
1) Use an air brush to clean the lower drum assy and the coil section of the new upper drum assy.
2) Set a new washer on the drum shaft as indicated in Fig. 2-5-25.

NOTE: Be sure to use the new washer when replace the upper drum assy.

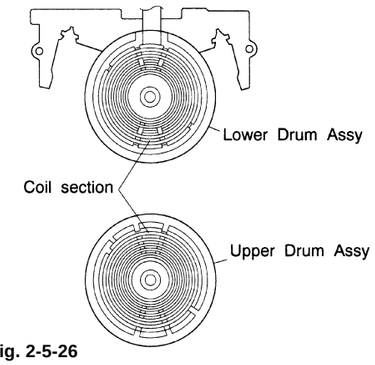

Fig. 2-5-26

3) Note the top and bottom of the collar assy and determine the position as indicated in Fig.2-5-25.

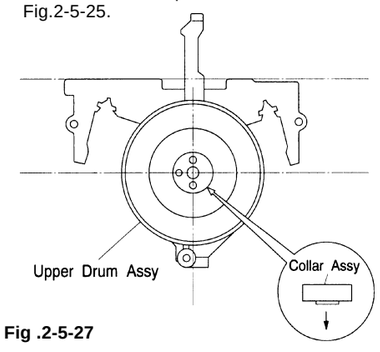

Fig .2-5-27

4) While pressing the collar assy evently from above with your fingertips, secure the hexagonal screw.
5) After installing,gently turn the upper drum by hand and confirm normal rotation.
6) Install the rotar assy and stator assy.
7) Clean the upper and lower drum assies and perform the following adjustments;

• PB switching point adjustment
• Slow tracking preset adjustment
• Interchangeability adjustment (be sure to check LP mode)

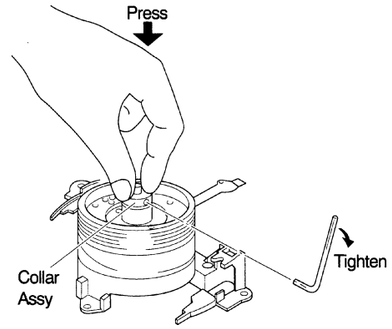

Fig. 2-5-28

CHECKUP AND ADJUSTMENT OF MECHANISM PHASE

Precaution
The rotary encoder and syscon circuit are closely interrelated.Therefore,the rotary encoder and control cam conection determines the operations of mechanical parts such as plates, gears, brakes, etc.Correct positioning of these parts is essential for smooth tape loading and mechanical operations.

Loading Arm Assy (supply,take-up)
1) Install the supply loading arm assy and the take-up loading arm assy so that their positioning markings on the respective gear face each other and the holes of their arms correspond to the holes on the main deck assy respectively.
2) After setting the guide railsengage the pole base assies with the tip of the loading arms respectively. Then enter the mechanism into the unloading mode to return the pole base assies to the front position.
3) Reassemble the peripheral parts of the guide rail as originally.

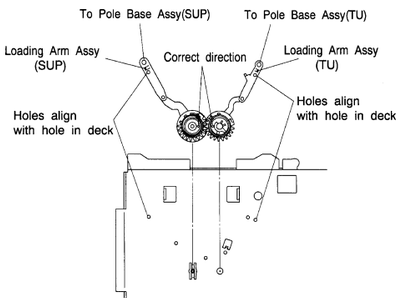
To Pole Base Assy(SUP)
To Pole Base Assy(TU)
Loading Arm Assy (SUP)
Correct direction
Loading Arm Assy (TU)
Holes align with hole in deck
Holes align with hole in deck

Fig. 2-6-1

Rotary Encoder, Change Lever, Control Cam

1) When reinstalling the rotary encoderadjust its position so as to fit the triangle marks each other and push it deep untill it is locked by the pawls.
2) When reinstalling the change leverset it so as to make its positioning hole correspond to the hole of the main deck assy.
3) When re-engaging the control cam lower the capstan brake assy while setting it so as to make its positioning hole correspond to the hole of the main deck assy.

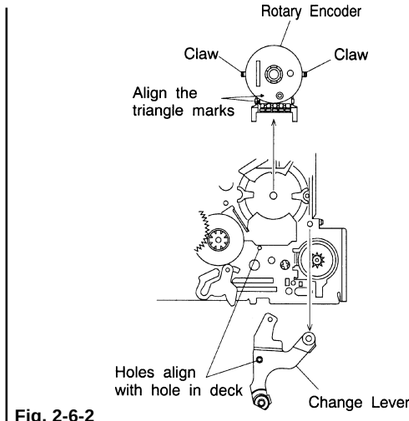

Fig. 2-6-2

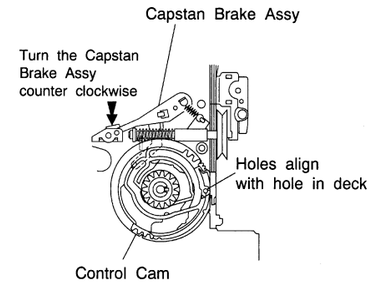

Fig. 2-6-3

Slide Plate

1) Lower both the main brake assies (supply and take-up) untill they touch the edge of the main deck assy while reinstalling the slide plate so as to make the respective positioning holes of the main brake assies correspond to the holes on the main deck assy.

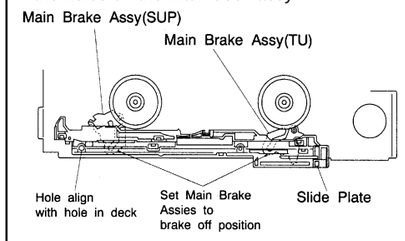
Main Brake Assy(SUP)
Main Brake Assy(TU)
Hole align with hole in deck
Set Main Brake Assies to brake off position
Slide Plate

Fig. 2-6-4

Control Plate
1) Reinstall the control plate so as to set the two positioning holes of it on the holes on the main deck assy respectively and to set the positioning hole of the take-up lever on the hole of the main deck at the same time. When adjusting the hole position of the take-up lever use a pair of tweezers to hold and move it since it is pulled by a tension spring.
2) After reinstalling the control platefix it with the slit washer control bracket -1 and -2.

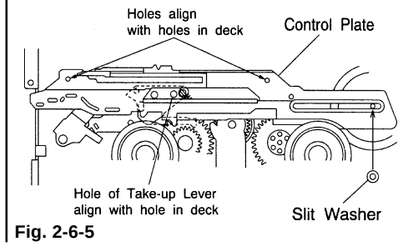

Fig. 2-6-5

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Mechanism Adjustments Cont'd

TAPE INTERCHANGEABILITY ADJUSTMENT

NOTE: This adjustment is extremely important. However, it is normally not required during routine service. Perform only after replacing major components (A/C head upper/lower drum assy, pole base assy, etc). Before using costly alignment tape use a spare tape and confirm correct operation of the tape transport.

Tape pattern

1) Connect the oscilloscope to TP106(PB FM) on the PRE/REC board.Use TP11110.FF) on the PRE/REC board as a trigger.
2) Playback the SP stairstep portion of the alignment tape [MHPE].Confirm that the FM waveform appears as indicated in Fig. 2-7-1.
3) Set the manual tracking position by pressing the **/ I /// ** button on the remote controller or TV PROG "-" and "+" buttons simultaneously.
4) Operate the tracking adjustment (press the TV PROG buttons during playback) and set for maximum playback FM waveform.
5) By operating the TV PROG buttonvary the FM waveform from maximum to minimum and vice versa to confirm that the waveform varies nearly in a flat shape as shown in Fig.2-7-1.

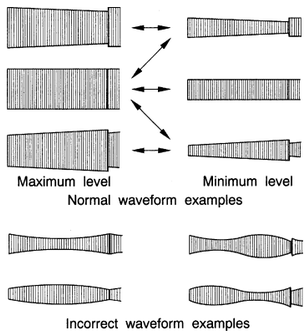


Fig. 2-7-1

6) When the FM waveform does not remain flat during this process,first slightly loosen the set screw located at the bottom of the guide rollersUsing the guide roller adjustment tool (Roller driver), adjust the supply and take-up guide rollers (refer to Fig. 2-7-2) to obtain the correct waveform as indicated in Fig. 2-7-3.

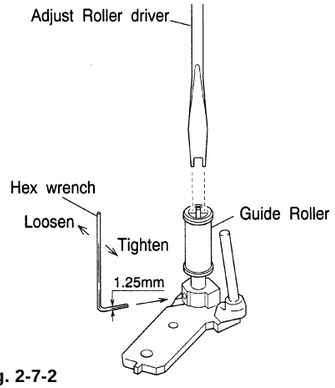


Fig. 2-7-2

7) By pressing the TV PROG buttons several times, vary the FM waveform output from maximum to minimum land vice versa) graduallyand confirm that the variation proceeds in flat shape, as shown in Fig. 2-7-3.

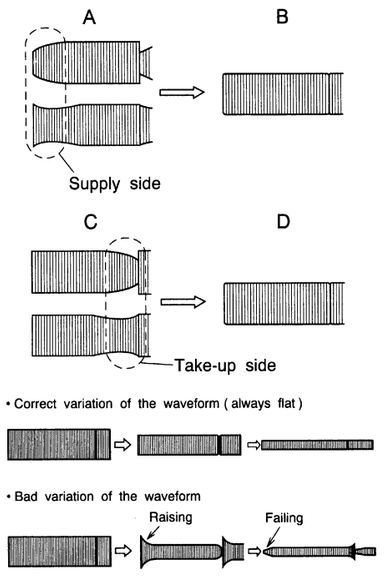


Fig. 2-7-3

8) Next playback the LP stairstep portion of the alignment tape [MHPE-L] and adjust the tracking control from maximum to minimum the FM waveform,confirm that FM waveform variation is always flat.
9) Record the signal and play it back in both of the SP and LP mode,confirm that the FM waveform is flat in both mode.
10)After adjustments,tighten the set screw of the guide rollers.
11)Confirm that the tape wrinking does not occur at the roller upper or lower limits as indicated in Fig.2-7-4.

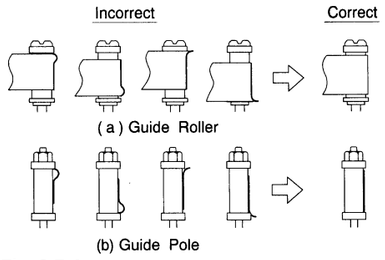


Fig. 2-7-4

A/C head height & azimuth
NOTE: Temporarily set A/C head height as indicated in Fig. 2-5-4.
Use spare tape to check the transport and confirm the tape is not scratched or damaged.

1. Tilt
1) Use spare tape and set for playback.
2) Turn screw (3) clockwise to where the tape curls just slightly at the TU guide pole bottom flange as shown in Fig. 2-7-5.

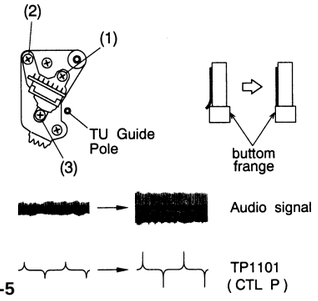


Fig. 2-7-5

3) Then slowly turn screw (3) counterclockwise to where the curling ceases.

2. Height
1) Connect CH-1 of a dual trace oscilloscope to Audio Out.
2) Connect CH-2 to TP11011 CTL PULSE) of the Main board assy and use the ALT mode.
3) Playback the SP stairstep portion of the alignment tape [MHPE].
4) Adjust screws (1) (2) and (3) for maximum audio output and control pulse level.

3. Azimuth
1) Connect the oscilloscope to Audio Out.
2) Playback the SP stairstep portion of the alignment tape [MHPE].
3) Adjust screw (2) 50 that the audio output is both maximum and with minimum fluctuation.

A/C head phase (X-value)

1) Connect the oscilloscope to TP106 (PB FM) on the PRE/REC board.Use TP111(D.FF) on the PRE/REC board as a trigger.
2) Playback the SP stairstep portion of the alignment tape [MHPE].
3) Set the neutral manual tracking position by pressing the ***III*** button on the remote controller or TV PROG "-" and "+" buttons simultaneously.
4) If adjustment is required,slightly loosen screws (4) and (5). Set A/C head positioning tool on the A/C head adjusting boss as indicated in Fig.2-7-6.

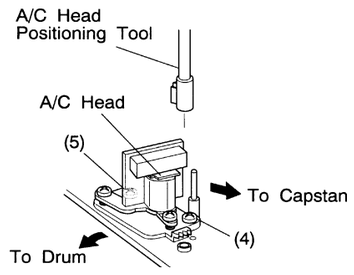


Fig. 2-7-6

5) Turn the tool first to position the NC head fully toward the capstan. Then gradually return it toward the drum and stop at the position of maximum FM waveform output level as shown in Fig.2-7-7.

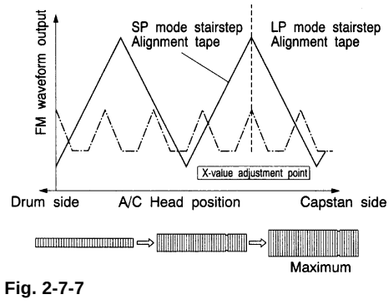


Fig. 2-7-7

6) Tighten screw (5). Remove the tool and tighten screw (4).
7) Eject the SP alighnment tape IMHPE] and then re-insert the LP alignment tape [MHPE-L].
8) Playback the LP stairstep portion of the alignment tape [MHPE-L].
9) Set the neutral manual tracking position by pressing the ***III*** button on the remote controller or TV PROG "-" and "+" buttons simultaneously.
10) Confirm maximum playback FM waveform output level as shown in Fig.2-7-7.
11) If not maximum,slightly loosen the screws (4) and (5). Use the tool and adjust the head position for the nearest maximum point. Then tighten screws (4) and (5).

LP mode auto tracking
NOTE: Set VCR to the mode A by remote controller.
1) Connect the oscilloscope to TP106(PB FM) on the PRE/REC Board. Use TP111(D.FF) on the PRE/REC board as a trigger.
2) Playback the LP stairstep portion of the alignment tape [MHPE-L].
3) Confirm the FM waveform of the oscilloscope screen until auto tracking action is over.
4) Twice press button "D" of the presetting unit [PTU94008].
5) If the alignment tape ejects automatically, repeat the A/C head phase adjustment (X-value).

Tension pole position
1) Set for playback mode using MECHANISM SERVICE MODE (See SECTION 1 DISAS-SEMBLY).
2) Slightly loosen the screw (A).
3) Turn the adjust pin so that the tension arm assy does not touch ø 2.5 pole on the outside.
4) Tighten the screw (A).
5) After adjustment,use the back tension cassette gauge and set for the playback mode.
6) Confirm reading of 29 to 46 g•cm.

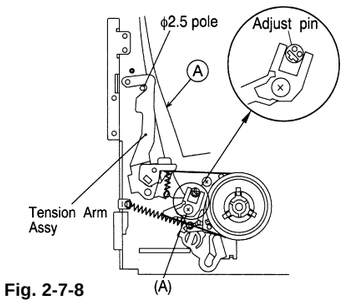


Fig. 2-7-8

Take-up torque
1) Use the back tension cassette gauge and set for the playback mode.
2) Confirm reading of 60 to 100 g•cm.

SERVO CIRCUIT
Notes: Unless otherwise specified,all measurement point and adjustment parts are located on the MAIN BOARD.
Set VCR to the mode A by remote controller.
Use only buttons "0", depressing other buttons during adjustment may cause adjustment errors.

PB switching point

Signal	• Alignment tape IMHPE]Stairstep
Mode	• PB
Equipment	• Oscilloscope
Measurement point	• J1411-pin 19 (VIDEO OUT) [TERMINAL BOARD]
Trigger slope (-)	• TP111 (DRUM FF1,[PRE/REC BOARD]
Adjustment tool	• Presetting unit [PTU94008]
Specification	• 6.5 ± 0.5H

1) Connect an oscilloscope to J1411-pin 19 (VIDEO OUT) and external trigger from TP111 (negative slope).
2) Playback the stairstep signal of the alignment tape.
3) Press the "0" button of the presetting unit.
4) Confirm that VCR mode becomes STOP mode.

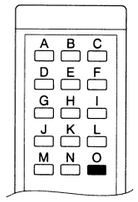


Fig. 3-2-1 Presetting unit

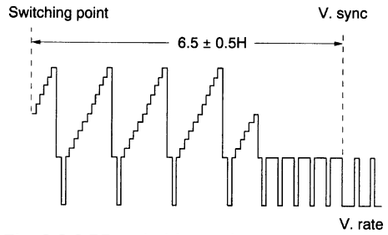


Fig. 3-2-2 PB switching point

Slow tracking preset

Signal	• Tuner or colour bar
Mode	• SP/LP, REC → PB(SLOW)
Equipment	• TV-Monitor
Adjustment tool	• Presetting unit [PTU94008]
Specification	• Minimum noise

Note: Set VCR to the mode A by remote controller. Use only buttons "B" and "C", depressing other buttons during adjustment may cause adjustment errors.

1) Record a colour bar signal in the SP mode.
2) Playback recorded signal on the FWD slow mode.
3) Observe the display on the TV monitor and adjust for optimum noise condition (best tracking) by depressing "B or "C " buttons of the presetting unit.
4) Depress the STOP button.
5) Confirm that the bar noise is not visible on the TV monitor in the slow mode.

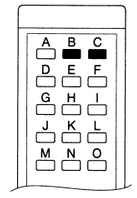


Fig.3-2-3 Presetting unit

VIDEO CIRCUIT
Notes: Unless otherwise specified,all measurement point and adjustment parts are located on the MAIN BOARD. Set VCR to the mode A by remote controller.

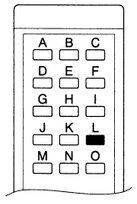


Fig.3-3-1 Presetting unit

Auto picture

Signal	• Monoscope
Mode	• REC then PB SP/LP
Adjustment tool	• Presetting unit[PTU94008]
Specification	• STOP mode

1) Record a monoscope signal in the SP mode.
2) Playback the recorded signal.
3) Press the 'L' button of the presetting unit during playback.
4) Confirm that VCR mode becomes STOP mode.
5) Repeat steps (2) to (4) in the LP mode.

SYSCON CIRCUIT
Notes: Unless otherwise specified,aII measurement point and adjustment parts are located on the MAIN BOARD. When perform this adjustment, remove the MECHANISM assy.

Timer clock

Signal	• No signal
Mode	• EE
Equipment	• Frequency counter
Measurement point	• TP702 round(SYS.CLK)
Adjustment part	• C701 (TIMER CLOCK)
Specification	• 1024.008 ± 0.001 Hz [976.5549 ± 0.0010 used]

1) Connect the frequency counter to TP702 round and GND.
2) Connect the short wire between TP701 round and Vcc(5V).
3) Short the leads of capacitor C704 once in order to reset IC701.
4) Disconnect the short wire then connect it again quickly.
5) Adjust C701 for 1024.008 ± 0.001 Hz. (976.5549 ± 0.0010 usec)

TUNER CIRCUIT
Note: Unless otherwise specified, all measurement points and adjustment parts are located on the IF UNIT.

RF AGC

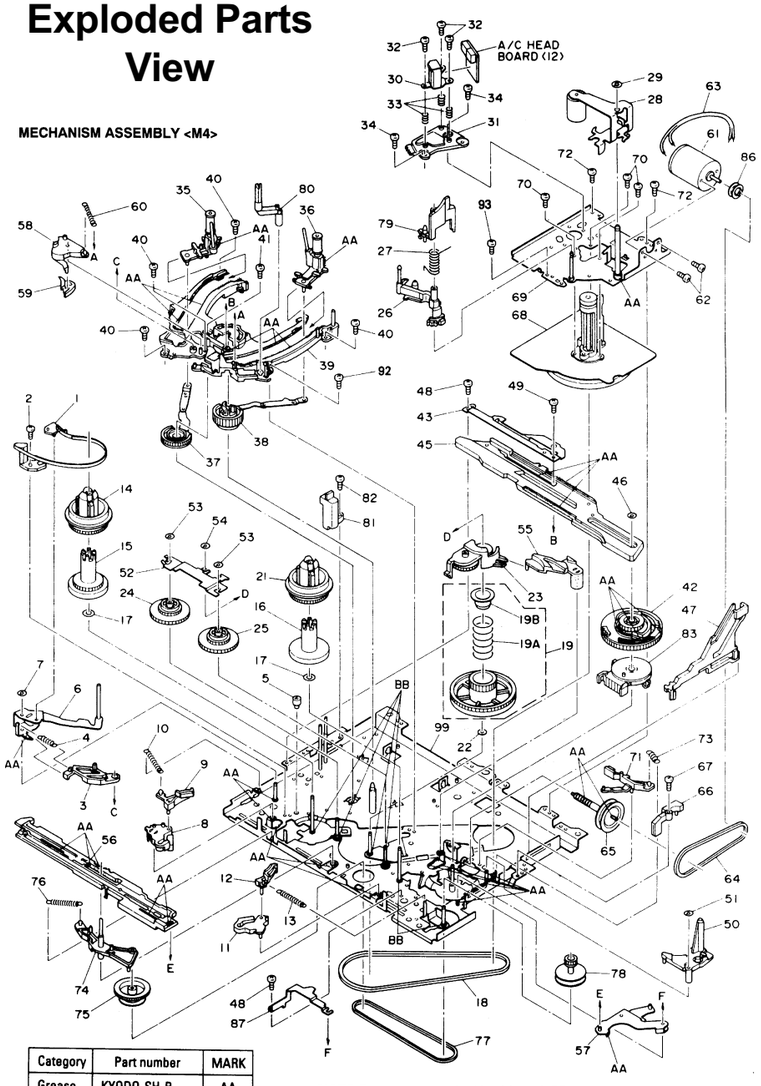
Signal	• TV broadcasting
Mode	• Tuner
Equipment	• TV monitor
Measurement point	• IF UNIT
Adjustment part	• IF VR
Specification	• Minimum noise

Note: Adjust IF VR (RF AGC) to correct for excess noise in the picture or when streaks cross interference occurs due to strong electrical fields.

1) Adjust IF VR to minimize noise or streaks on the TV screen.
2) Adjust for noisy picture with strong signal. Then adjust until noise just disappears. Select other channels to confirm proper pick-up of channels.

End

Exploded Parts View



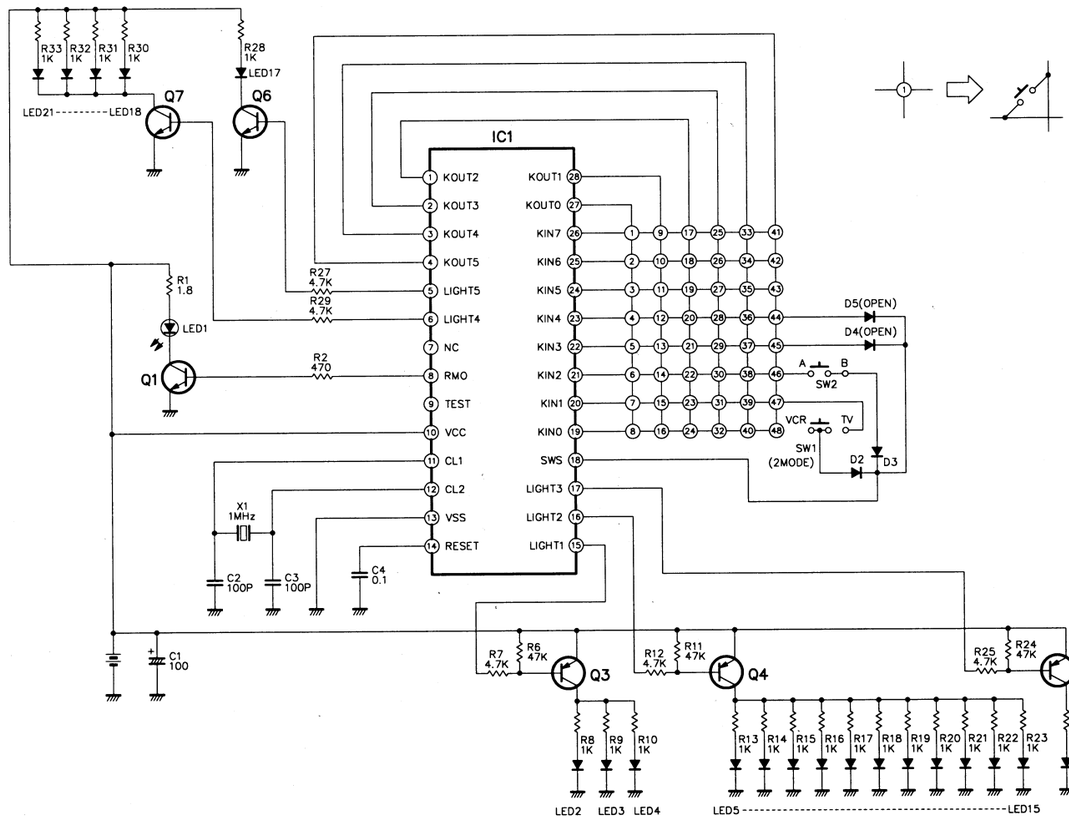
Category	Part number	MARK
Grease	KYODO-SH-P	AA
Oil	COSMO-HV56	BB

NOTE: The section marked in **AA** and **BB** indicate lubrication and greasing areas.

Mechanical Parts

Item	Part No.	Description
1	PQ46298A-5	TENSION BAND ASSEMBLY
2	5D5T2608Z	SCREW
3	PQ35012-1-3	TENSION ARM LEVER
4	PQM30001-385109	TENSION SPRING
5	PQ46302-1-3	ADJUST PIN
6	PQ463038-7	TENSION ARM ASSEMBLY
7	PQM30017-47	SLIT WASHER
8	PQ46548A	MAIN BRAKE ASSEMBLY (SUPPLY)
9	PQ46306A-3	SUB BRAKE ASSEMBLY (SUPPLY)
10	PQM30001-393	TENSION SPRING
11	PQ46550A	MAIN BRAKE ASSEMBLY (TAKE UP)
12	PQ46309A-4	SUB BRAKE ASSEMBLY (TAKE UP)
13	PQM30001-389102	TENSION SPRING
14	PQ46499A-3	REEL ASSEMBLY (SUPPLY)
15	PQ35014-1-1	SLIT DISK (SUPPLY)
16	PQ35015-1-1	SLIT DISK (TAKE UP)
17	PQM30018-69	SPACER,X2
18	PQM30003-38	BELT(CAPSTAN)
19	PQ46497B-2	PULLEY ASSEMBLY
19A	PQM30002-233	COMPRESION SPRING
19B	PQ46311	SPRING CAP
21	PQ46498A-2	REEL ASSEMBLY (TAKE UP)

Remote Control Diagram



Key No.	Key Name
1	PUSH JOG >>
2	–
3	R.A.EDIT
4	SCENE FINDER
5	PRG CHK
6	7
7	8
8	9
9	ILLUMI GUIDE
10	TV PROG +
11	CH + /TV VOL +
12	PROG
13	OK
14	CANCEL
15	0
16	TIMER
17	OPERATE
18	–
19	AUDIO MONITOR
20	–/– –
21	TV/VIDEO
22	RE–VIEW
23	CH SEARCH
24	CH STORE
25	STOP –
26	DATE +
27	DATE –
28	START –
29	TV PROG –
30	CLOCK
31	DISPLAY
32	MODE
33	START +
34	PUSH JOG <<
35	PLAY
36	REW
37	FF
38	1
39	2
40	3
41	CH – /TV VOL –
42	STOP +
43	STOP
44	REC
45	PAUSE
46	4
47	5
48	6
44+35	REC PLAY
44+45	REC PAUSE

PEAC0442

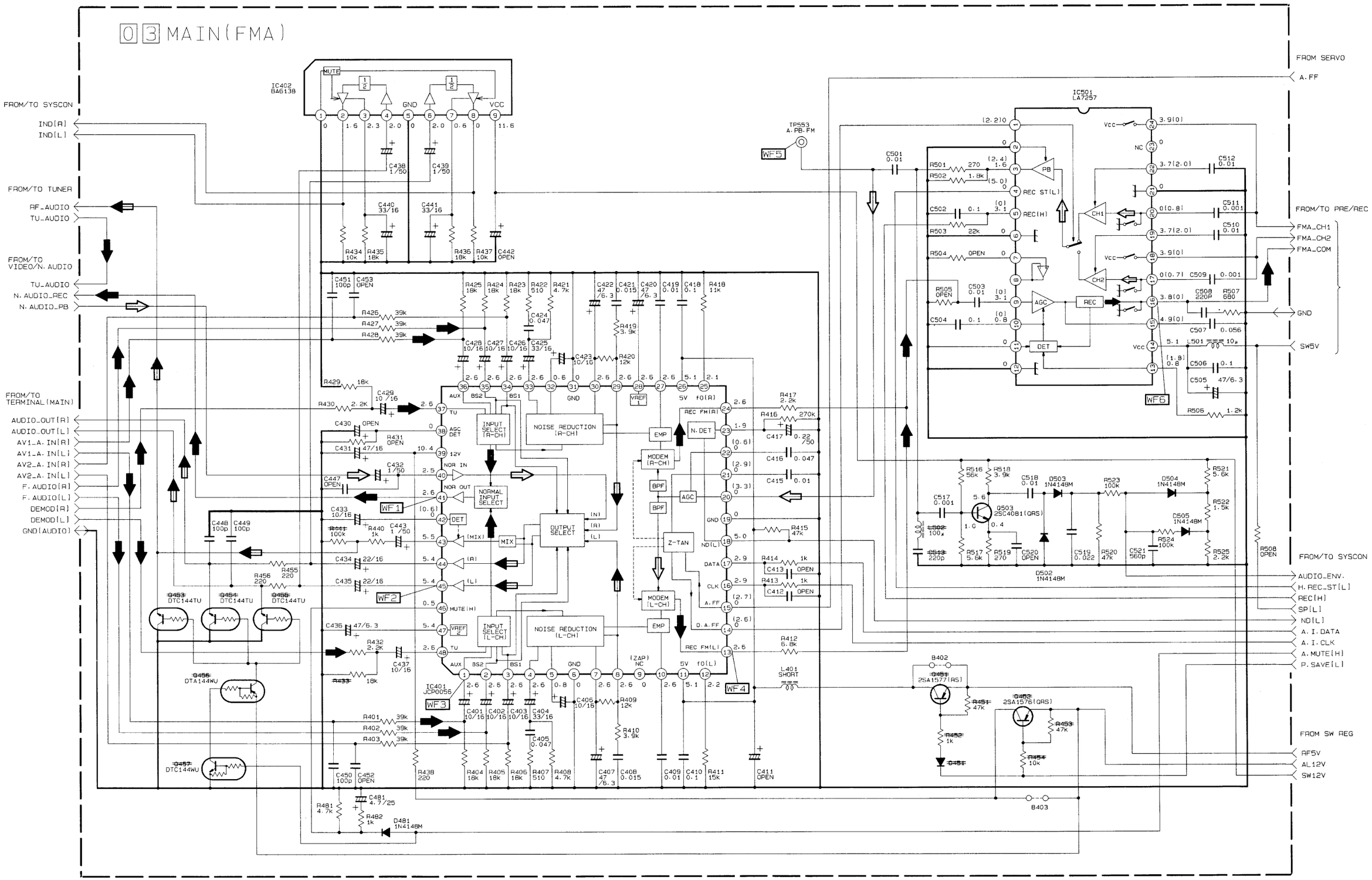
Mechanical Parts

Item	Part No.	Description
22	PQM30018-69	SPACER
23	PQ46312B-8	IDLER ARM ASSEMBLY
24	PQ46316A-1	CLUTCH UNIT (SUPPLY)
25	PQ46323A-1	CLUTCH UNIT (TAKE UP)
26	PQ46325B-8	GUIDE ARM ASSEMBLY
27	PQ46326-2	TORSION SPRING
28	PQ46327A	PINCH ROLLER ARM ASSEMBLY
29	PQM30017-24	SLIT WASHER,P LEVER
30	PEHE0182	AUDIO CONTROL HEAD
31	PQ35206-1-3	HEAD BASE
32	PQ43687A	SPECIAL SCREW,X3
33	PQM30002-192	COMPRESSION SPRING,X3
34	SDSP2604Z	SCREW,X2
35	PQ46595A	POLE BASE ASSEMBLY (SUPPLY)
36	PQ46597A	POLE BASE ASSEMBLY (TAKE UP)
37	PQ46332A-3	LOADING ARM ASSEMBLY (SUPPLY)
38	PQ46337A-6	LOADING ARM ASSEMBLY (TAKE UP
39	PQ11657-1-9	GUIDE RAIL
40	SPST2608Z	SCREW,X4
41	SDST2612Z	SCREW
42	PQ21684-1-3	CONTROL CAM
43	PQ35138-1-2	CONTROL BRACKET
45	PQ11658-1-12	CONTROL PLATE
46	PQM30017-8	SLIT WASHER
47	PQ21685-2-9	PINCH PLATE
48	SPST2606Z	SCREW,X2
49	SPSF2608M	SCREW
50	PQ46342B-10	LEVER ASSEMBLY
51	PQM30017-8	SLIT WASHER
52	PQ35083-1 -8	REEL BRACKET
53	PQM30017-51	SLIT WASHERX2
54	Q03093-830	WASHER
55	PQ35026-1-7	IDLER LEVER

Mechanical Parts

Item	Part No.	Description
56	PQ11659-1-11	SLIDE PLATE
57	PQ46344A-2	CHANGE LEVER ASSEMBLY
58	PQ21686-1-3	TAKE UP LEVER ASSEMBLY
59	PQ46345-1-2	TAKE UP HEAD
60	PQM30001-387106	TENSION SPRING
61	PU60628-3-2	LOADING MOTOR
62	SPSP3003Z	SCREW,X2
63	PW30101-80AJ632	WIRE
64	PQM30003-39	BELT
65	PQ46395B	WORM GEAR ASSEMBLY
66	PQ21699	WORM BEARING
67	SPST2606Z	SCREW
68	PU61487-2	CAPSTAN MOTOR
69	PQ46347F-15	SUB DECK ASSEMBLY
70	SPSG2608Z	SCREW,X3
71	PQ46356C-3	CAPSTAN BRAKE ASSEMBLY
72	SPST2606Z	SCREW,X2
73	PQM30001-384101	TENSION SPRING,CAPSTAN BRAKE
74	PQ46353A-2	CHANGE ARM ASSEMBLY
75	PQ46354	CHANGE GEAR
76	PQM30001-386	TENSION SPRING
77	PQM30003-40	BELT
78	PQ46355	CASSETTE GEAR
79	PQ35030-1-5	LID GUIDE
80	PQ21689-2	LED PRISM
81	PEHE0237	FULL ERASE HEAD
82	SDST2610Z	SCREW
83	PU61432-1-1	ROTARY ENCODER
86	PQ43546-1-2	MOTOR PULLEY
87	PQ35217-1-2	CONTROL BRACKET 2
92	SDST2608Z	SCREW
93	SDST2608Z	SCREW
99	PQ21680D-18	MAIN DECK ASSEMBLY

FM Audio Diagram



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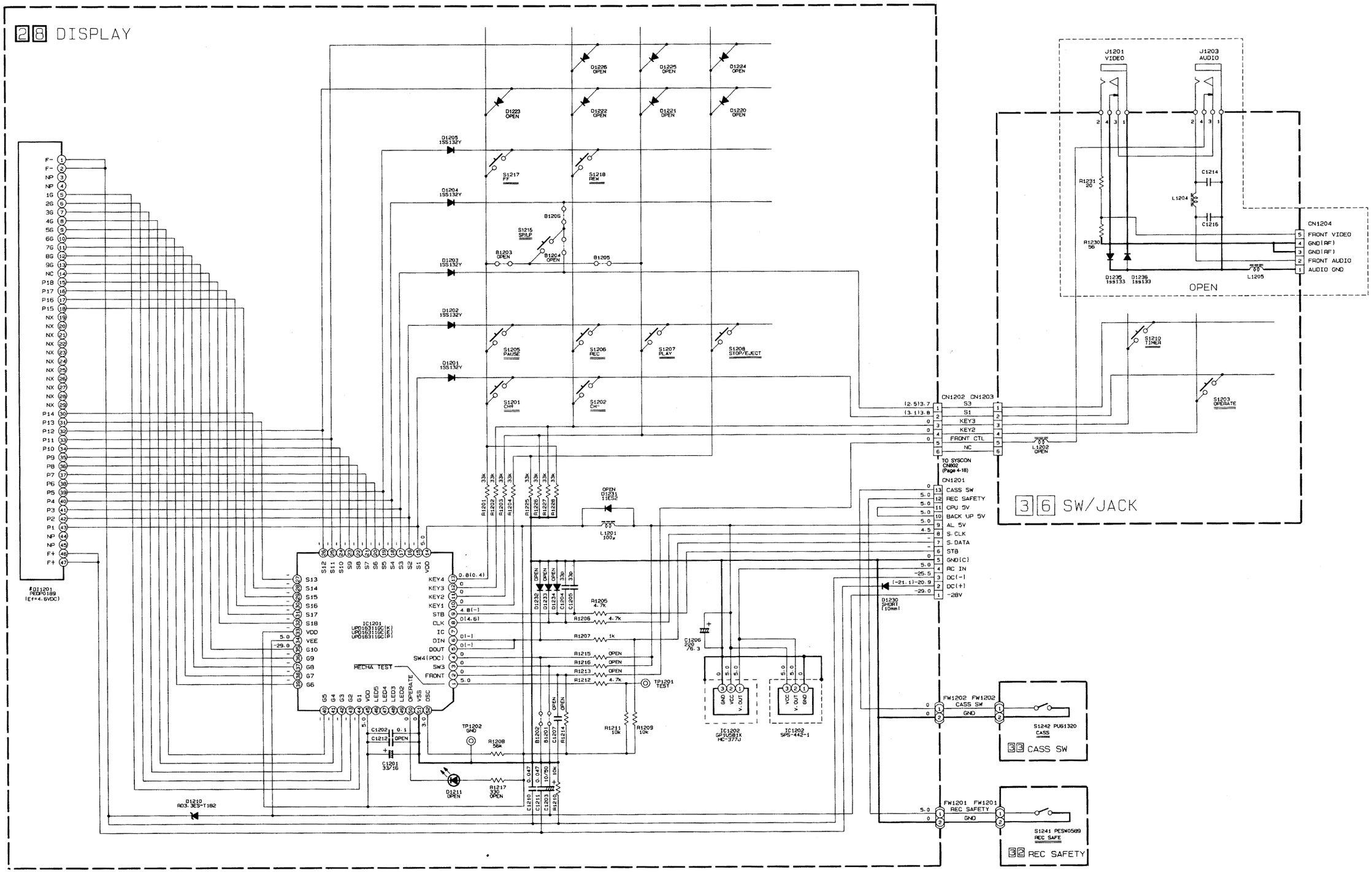
Front Display (HR-A630 & HRA631) Diagram



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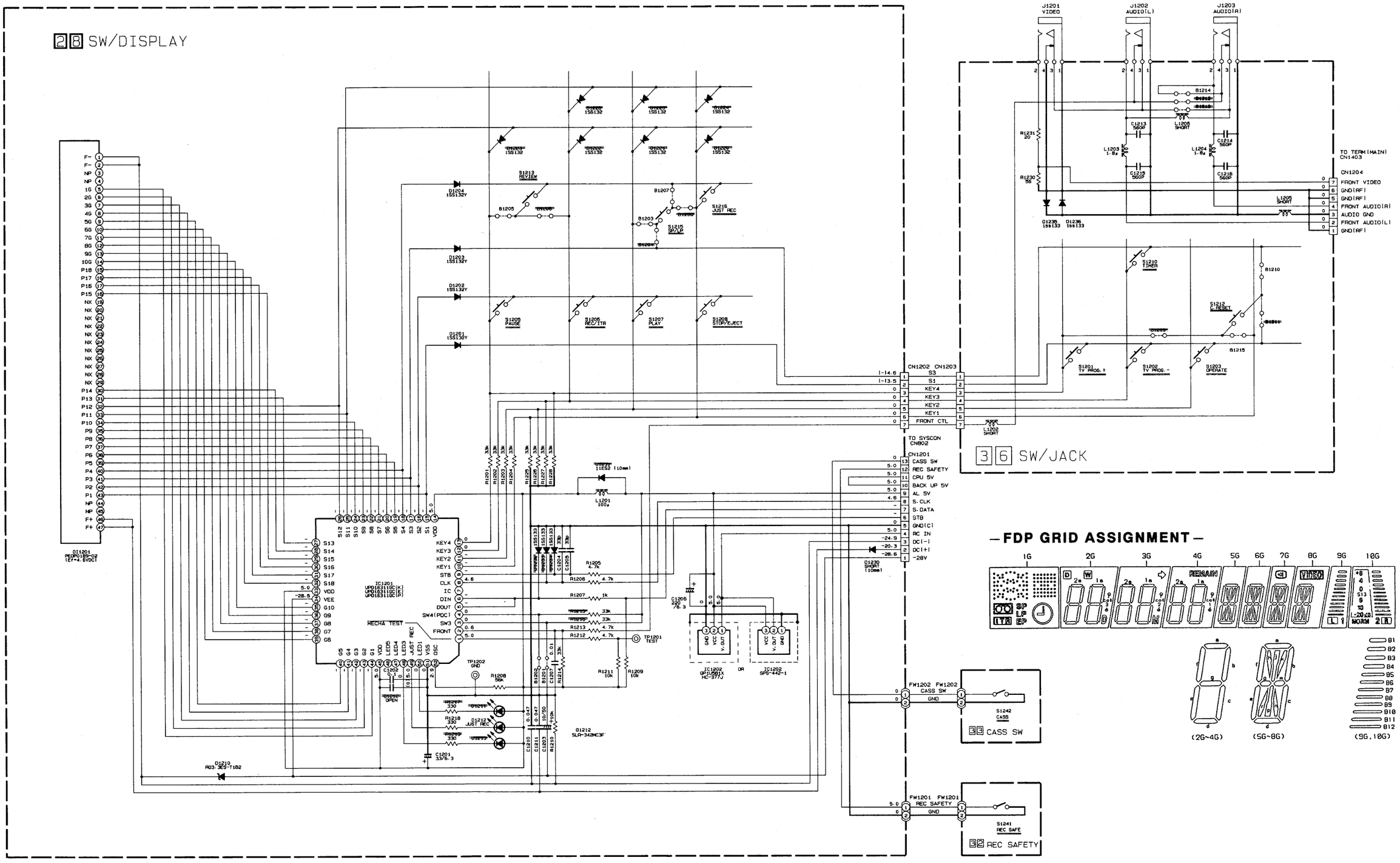
Front Display (HR-A635) Diagram



— FDP GRID ASSIGNMENT —

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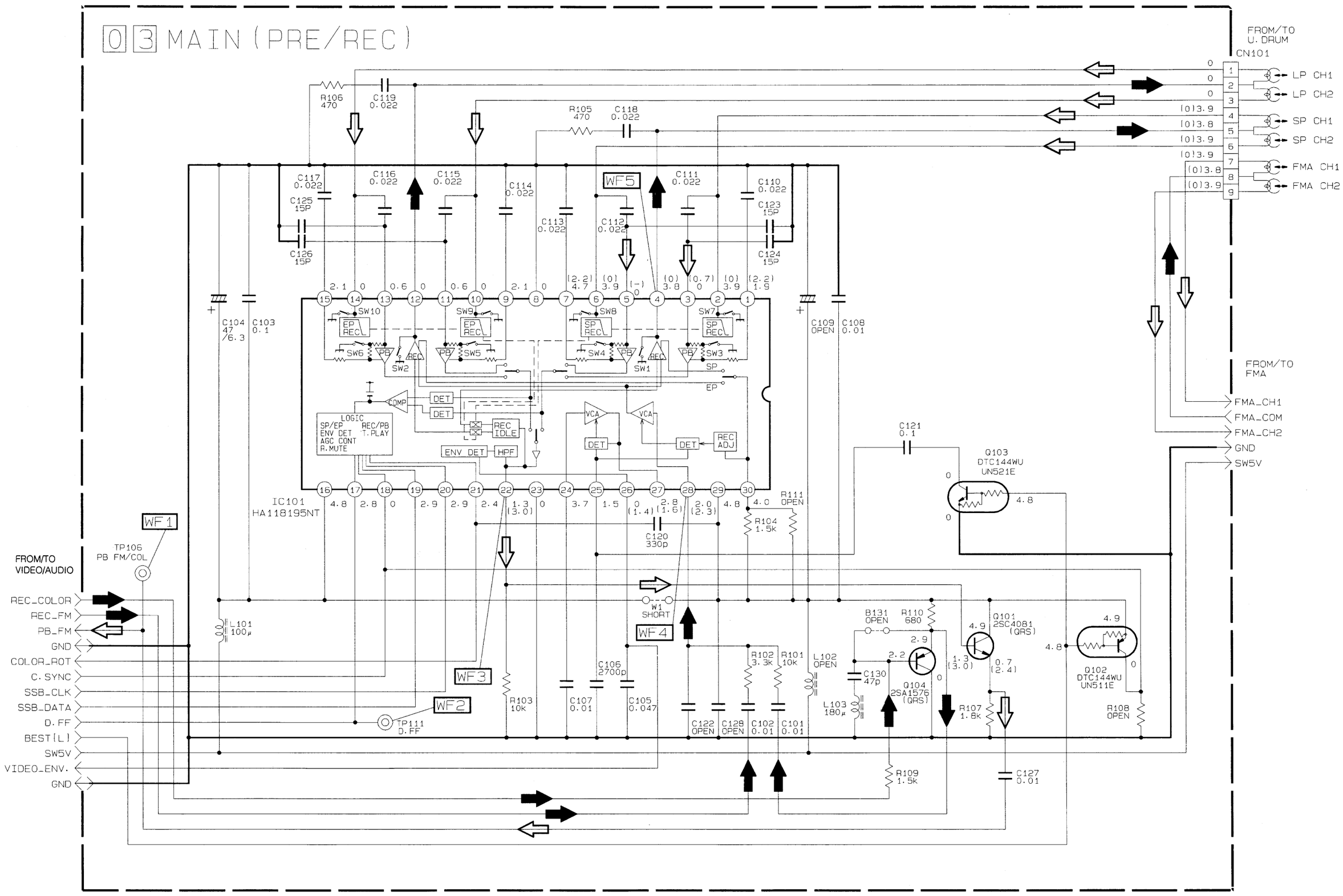
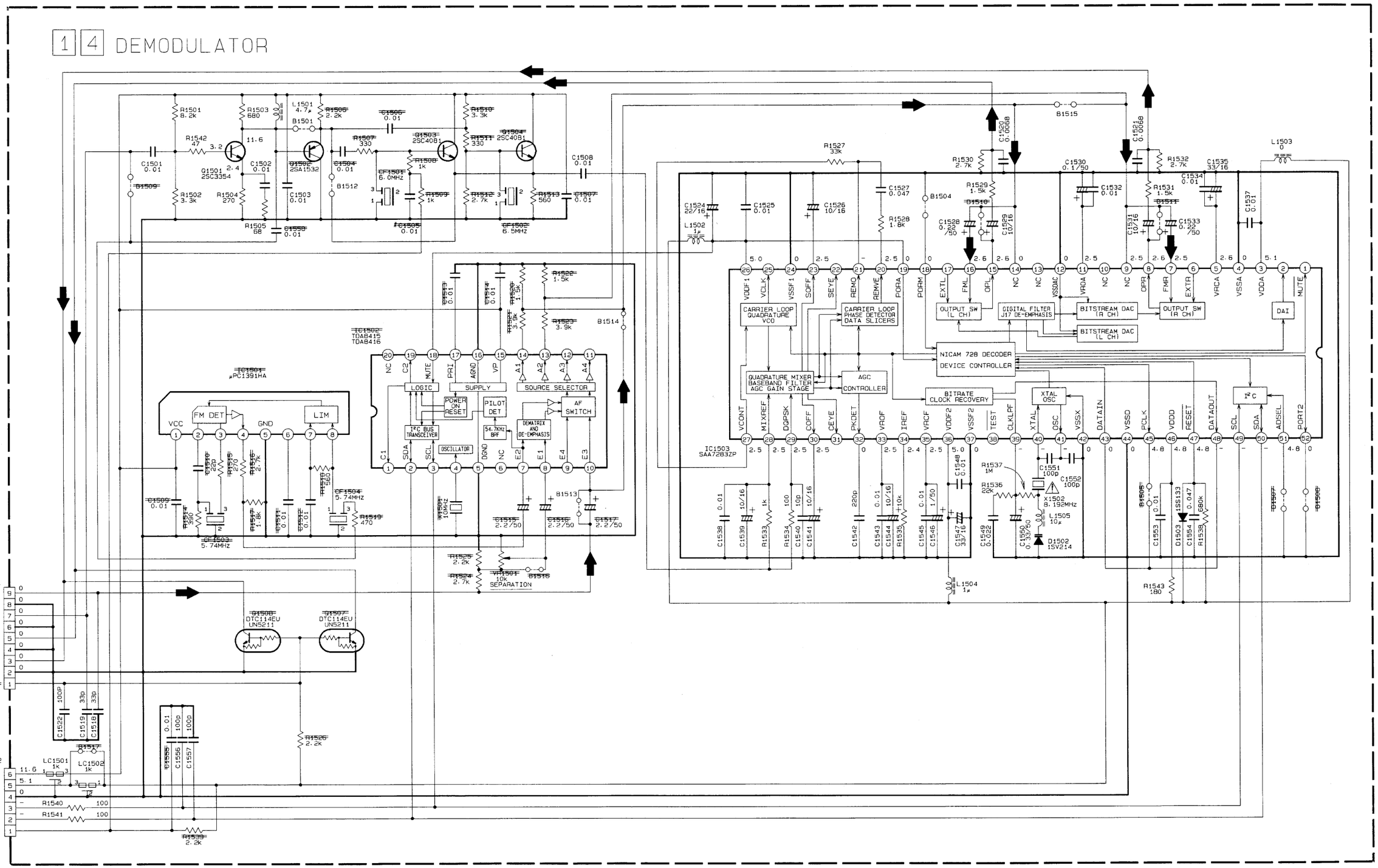
Head Amp Diagram



Nicam Demodulator Diagram



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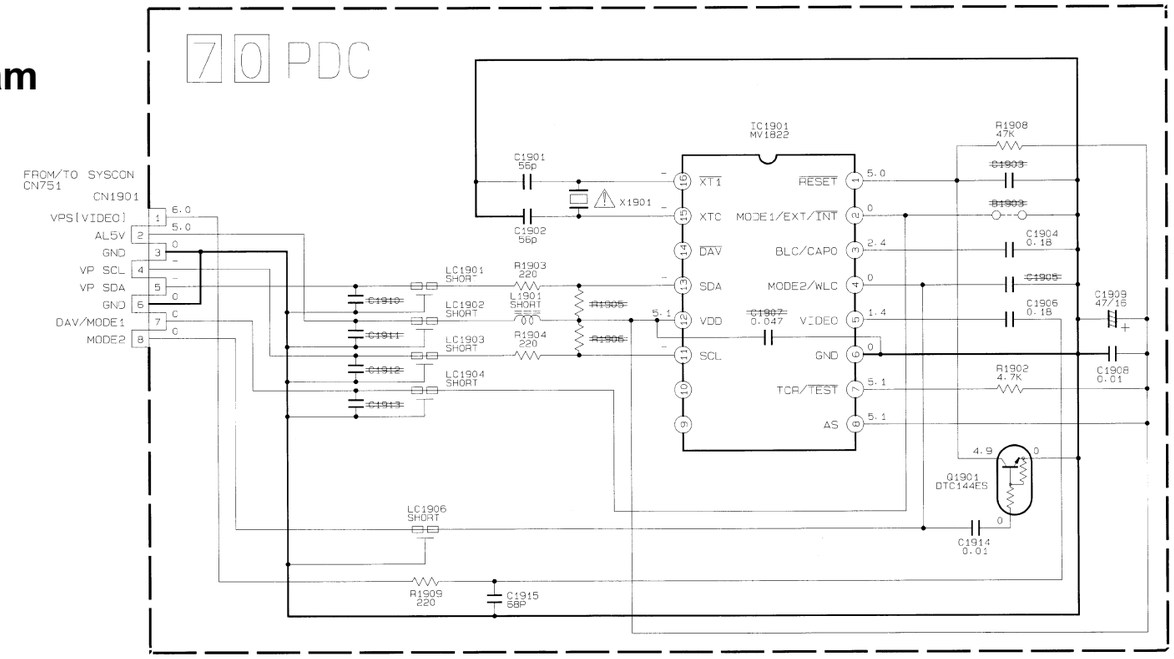
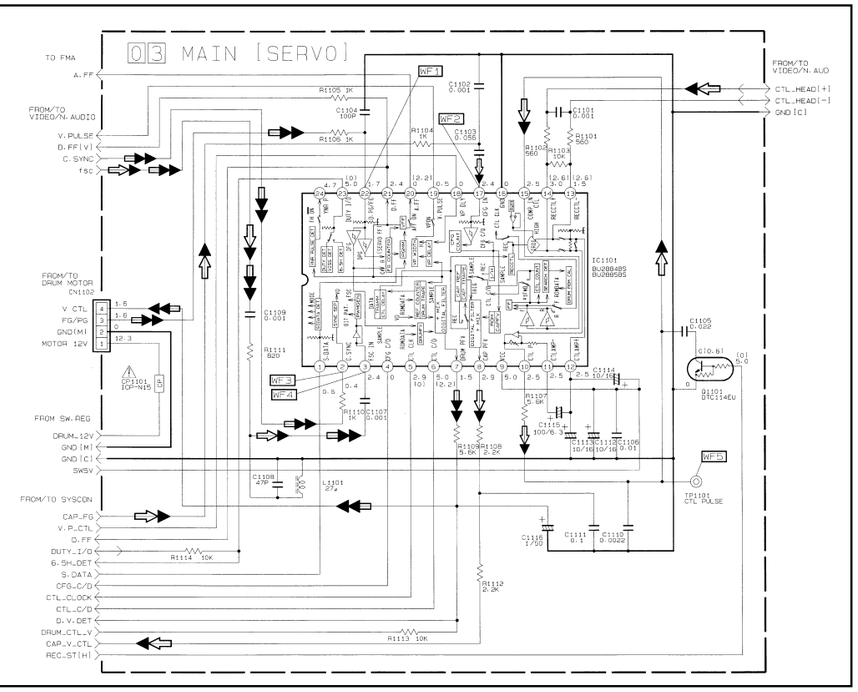
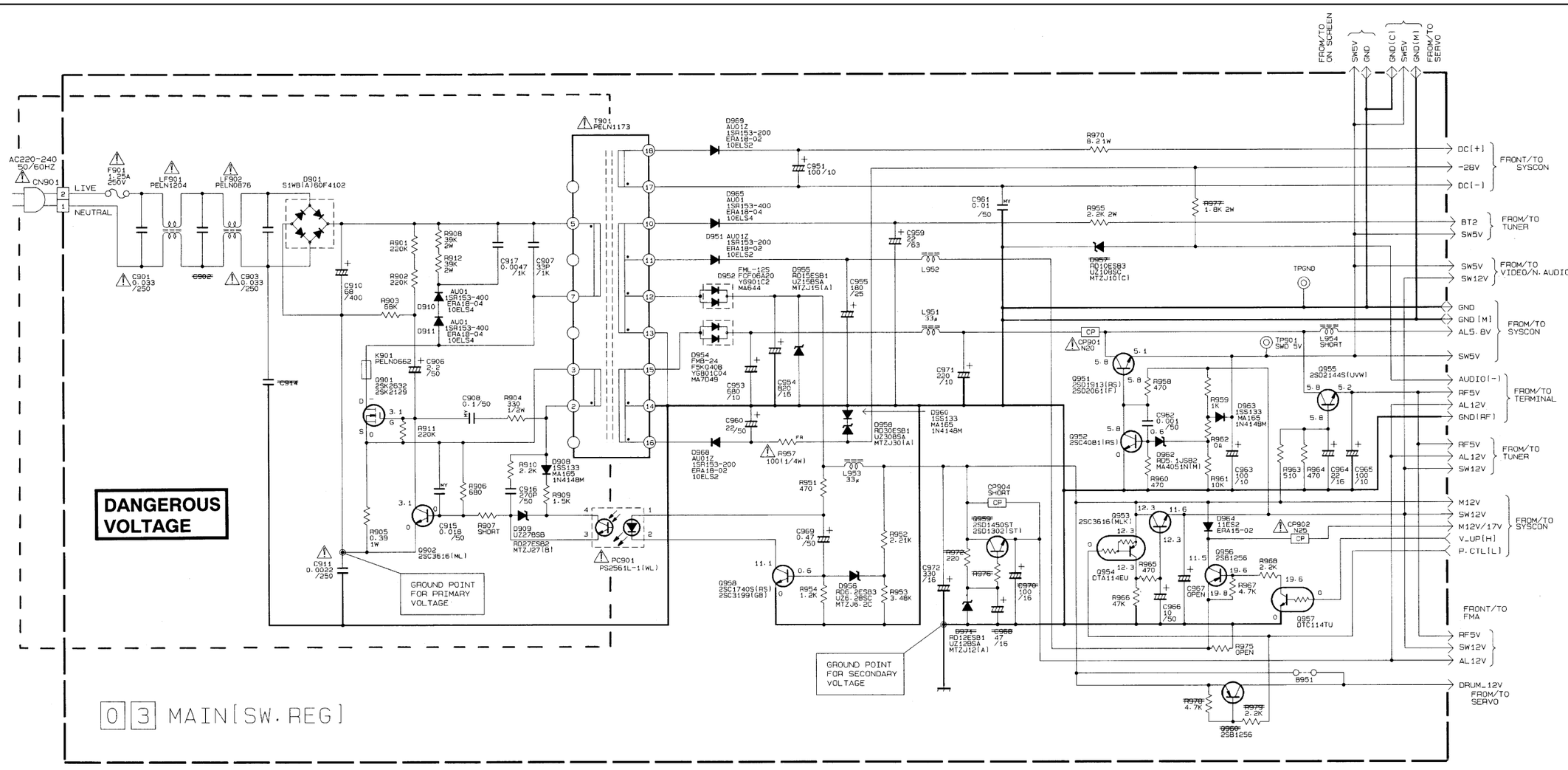
PDC Diagram



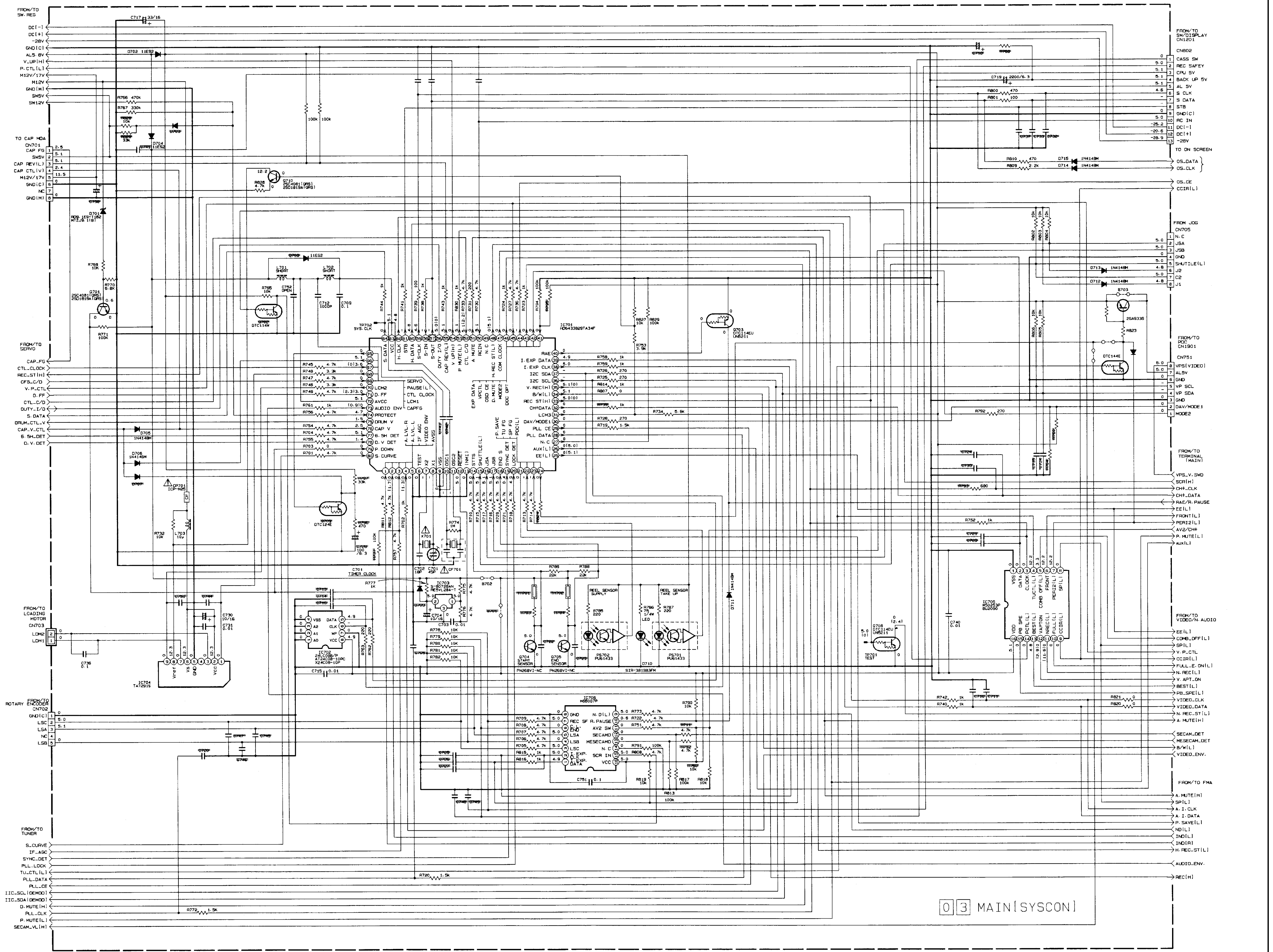
Servo Diagram



Power Supply Diagram



System Control Diagram


FROM/TO SW. REG
DC(-)
DC(+)
-28V
GND(C)
AL5. 8V
V_UP(H)
P. CTL(L)
M12V/17V
M12V
GND(M)
SW5V
SW12V
TO CAP MDA
CN701
CAP FG
SW5V
CAP REV(L)
CAP CTL(V)
M12V/17V
GND(C)
NC
GND(M)
FROM/TO SERVO
CAP_FG
CTL_CLOCK
REC_ST(H)
CFG_C/D
V. P_CTL
D. FF
CTL_C/D
DUTY_I/O
S. DATA
DRUM_CTL_V
CAP_V_CTL
6. 5H_DET
D. V. DET
FROM/TO LOADING MOTOR
CN703
LDM2
LDM1
FROM/TO ROTARY ENCODER
CN702
GND(C)
LSC
LSA
NC
LSB
FROM/TO TUNER
S_CURVE
IF_AGC
SYNC_DET
PLL_LOCK
TU_CTL(L)
PLL_DATA
PLL_CE
IIC_SCL(DEMOD)
IIC_SDA(DEMOD)
D. MUTE(H)
PLL_CLK
P. MUTE(L)
SECAM_VL(H)
IC701 HD6433929TA34F
IC702 24LC08B/P AT24C08-10PC X24C08-10P
IC703 S-80728AN RE5VL28A-T
IC704 TA7291S
IC705 M50253P BU2090
IC706 M66007P
Q701 2SC4081(QRS) 2SD1819A(QRS)
Q703 DTC114EU UN5211
Q704 START SENSOR
Q705 END SENSOR
Q708 DTC114EU UN5211
Q710 2SC4081(QRS) 2SD1819A(QRS)
PS701 PU61433
PS702 PU61433
REEL SENSOR SUPPLY
REEL SENSOR TAKE UP
D710 SIR-381SB3FM
X701
CF701
TIMER CLOCK
TP701 TEST
TP702 SYS. CLK
FROM/TO SW/DISPLAY CN1201
CN802
CASS SW
REC SAFEY
CPU 5V
BACK UP 5V
AL 5V
S CLK
S DATA
STB
GND(C)
RC IN
DC(-)
DC(+)
-28V
TO ON SCREEN
OS_DATA
OS_CLK
OS_CE
CCIR(L)
FROM JOG
CN705
N. C
JSA
JSB
GND
SHUTTLE(L)
J2
C2
J1
FROM/TO PDC CN1901
CN751
VPS(VIDEO)
AL5V
GND
VP SCL
VP SDA
GND
DAV/MODE1
MODE2
FROM/TO TERMINAL (MAIN)
VPS_V. SWD
SCR(H)
CH+_CLK
CH+_DATA
RAE/R. PAUSE
EE(L)
FRONT(L)
PERI2(L)
AV2/CH+
P. MUTE(L)
AUX(L)
FROM/TO VIDEO/N. AUDIO
EE(L)
COMB_OFF(L)
SP(L)
V. P_CTL
CCIR(L)
FULL_E. ON(L)
N. REC(L)
V. APT_ON
BEST(L)
PB_SPE(L)
VIDEO_CLK
VIDEO_DATA
N. REC_ST(L)
A. MUTE(H)
SECAM_DET
MESECAM_DET
B/W(L)
VIDEO_ENV.
FROM/TO FMA
A. MUTE(H)
SP(L)
A. I. CLK
A. I. DATA
P. SAVE(L)
ND(L)
IND(L)
IND(R)
H. REC_ST(L)
AUDIO_ENV.
REC(H)
03 MAIN(SYSCON)

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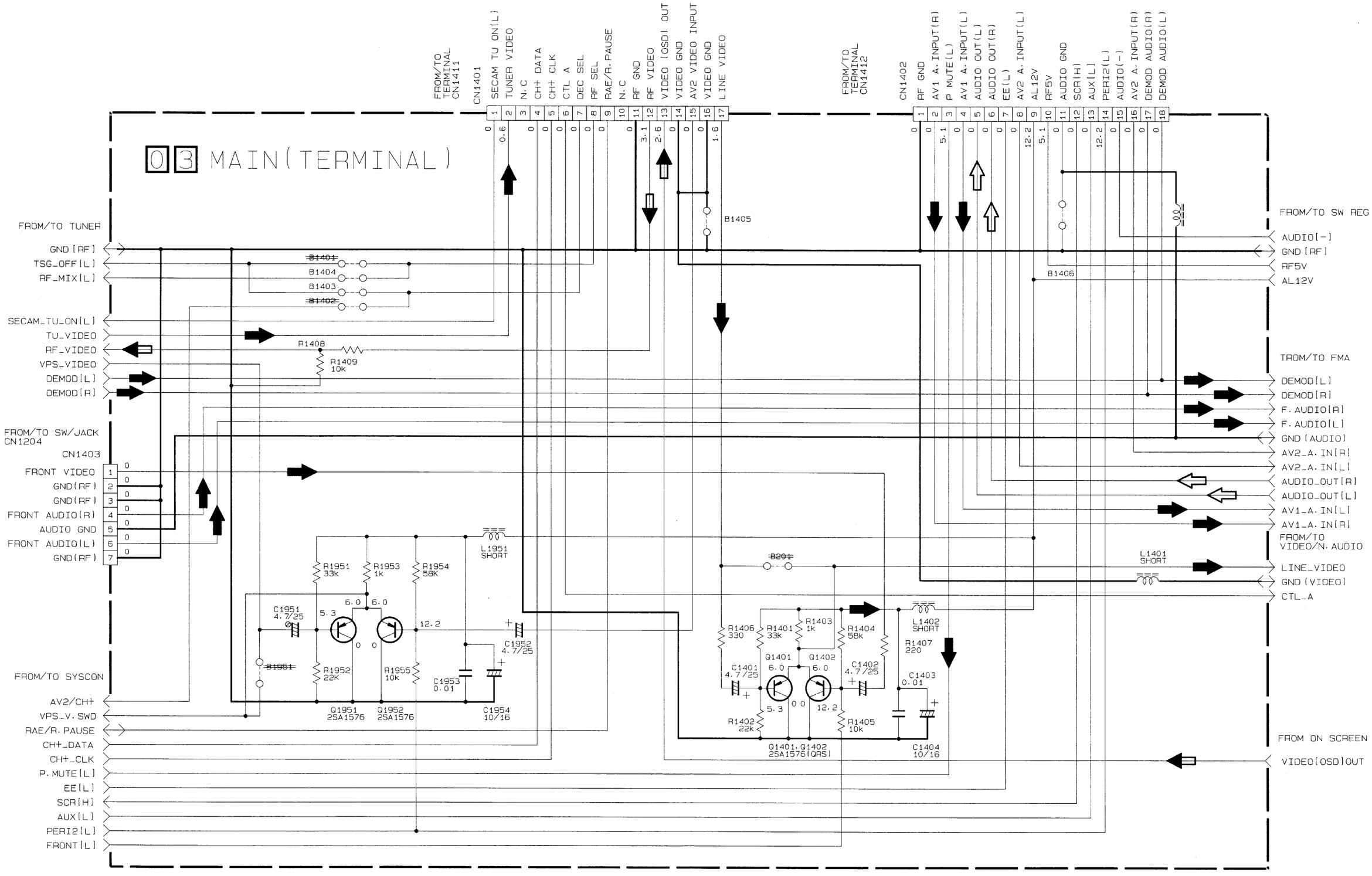
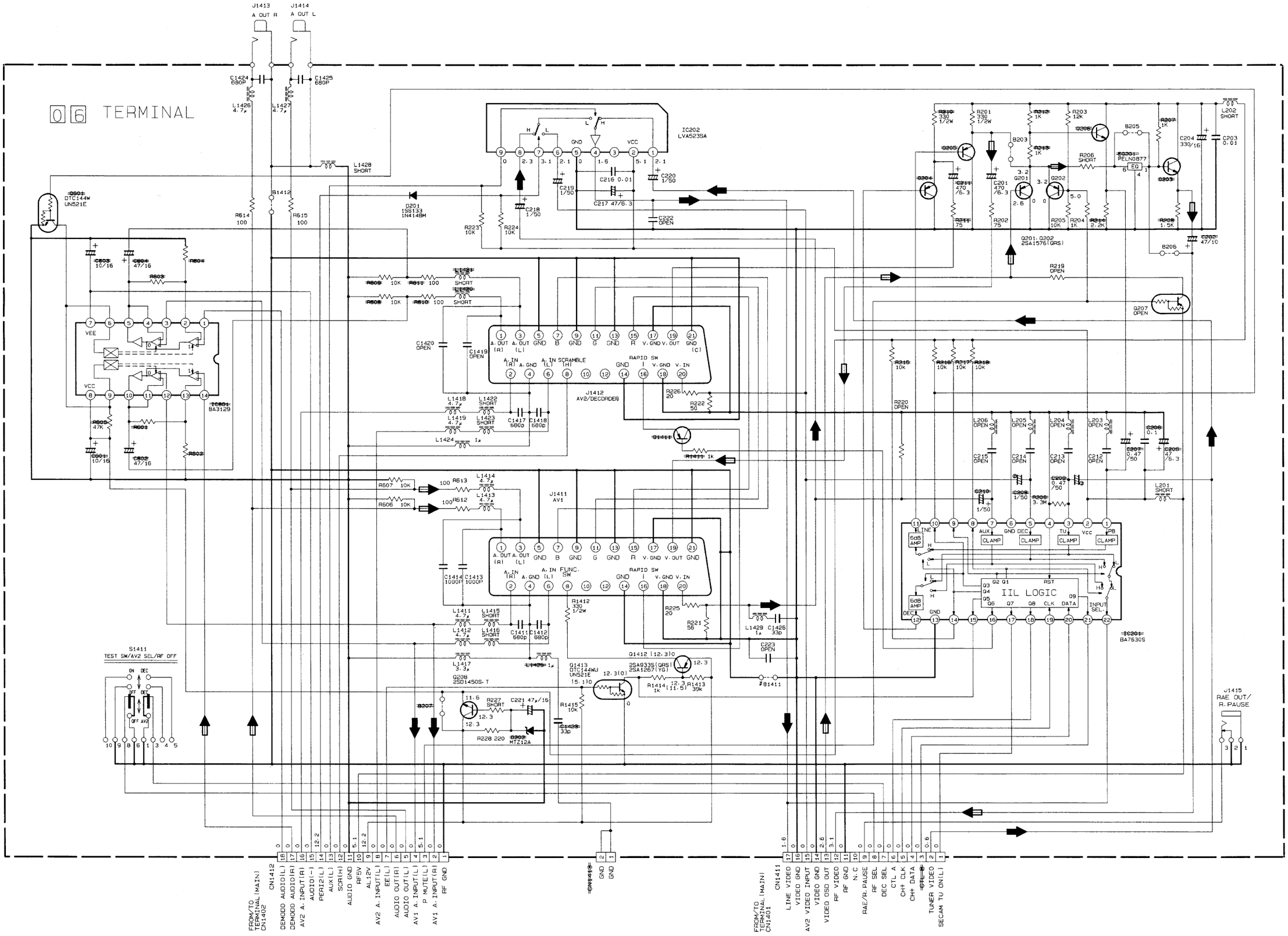
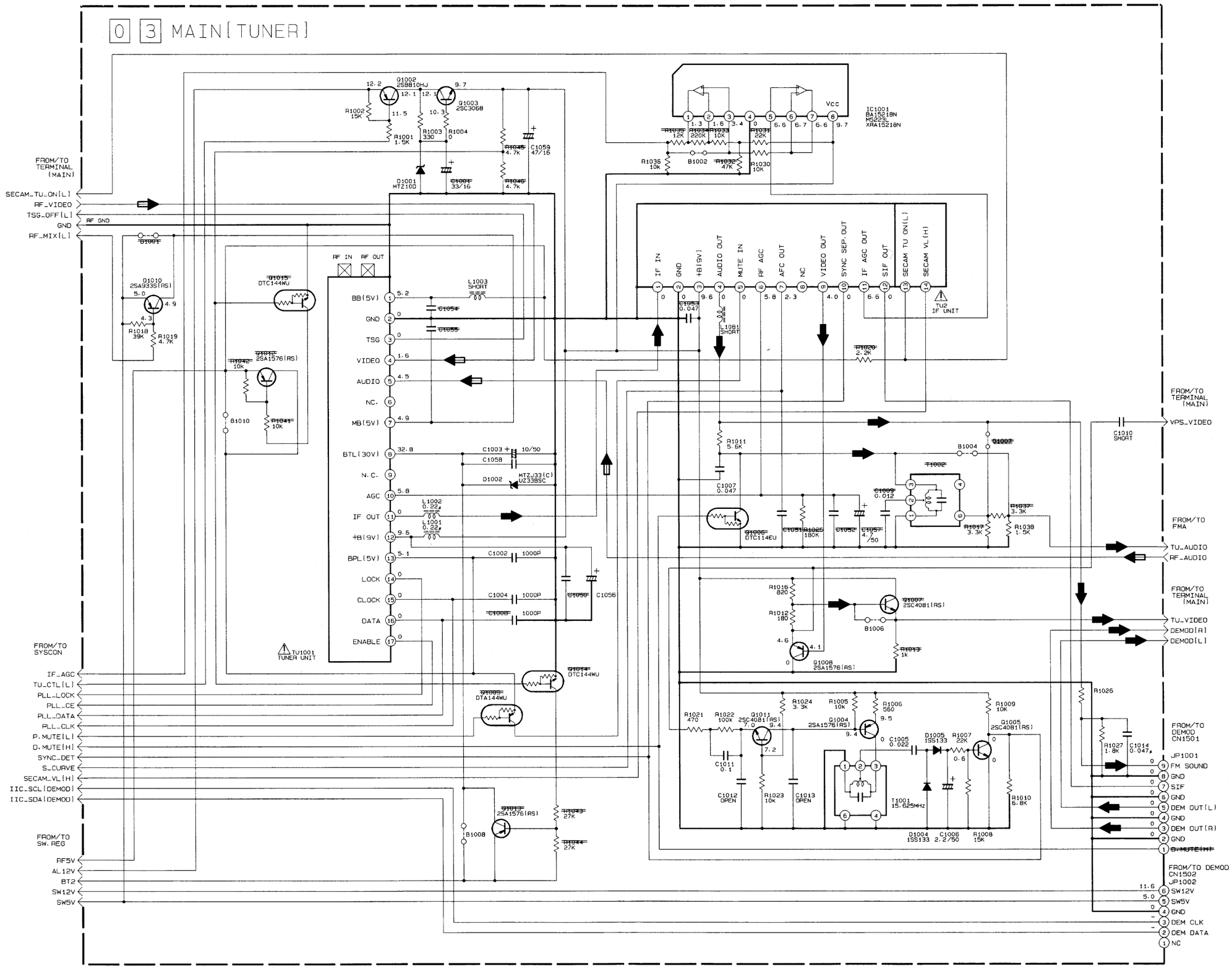
Terminal Interface Diagram



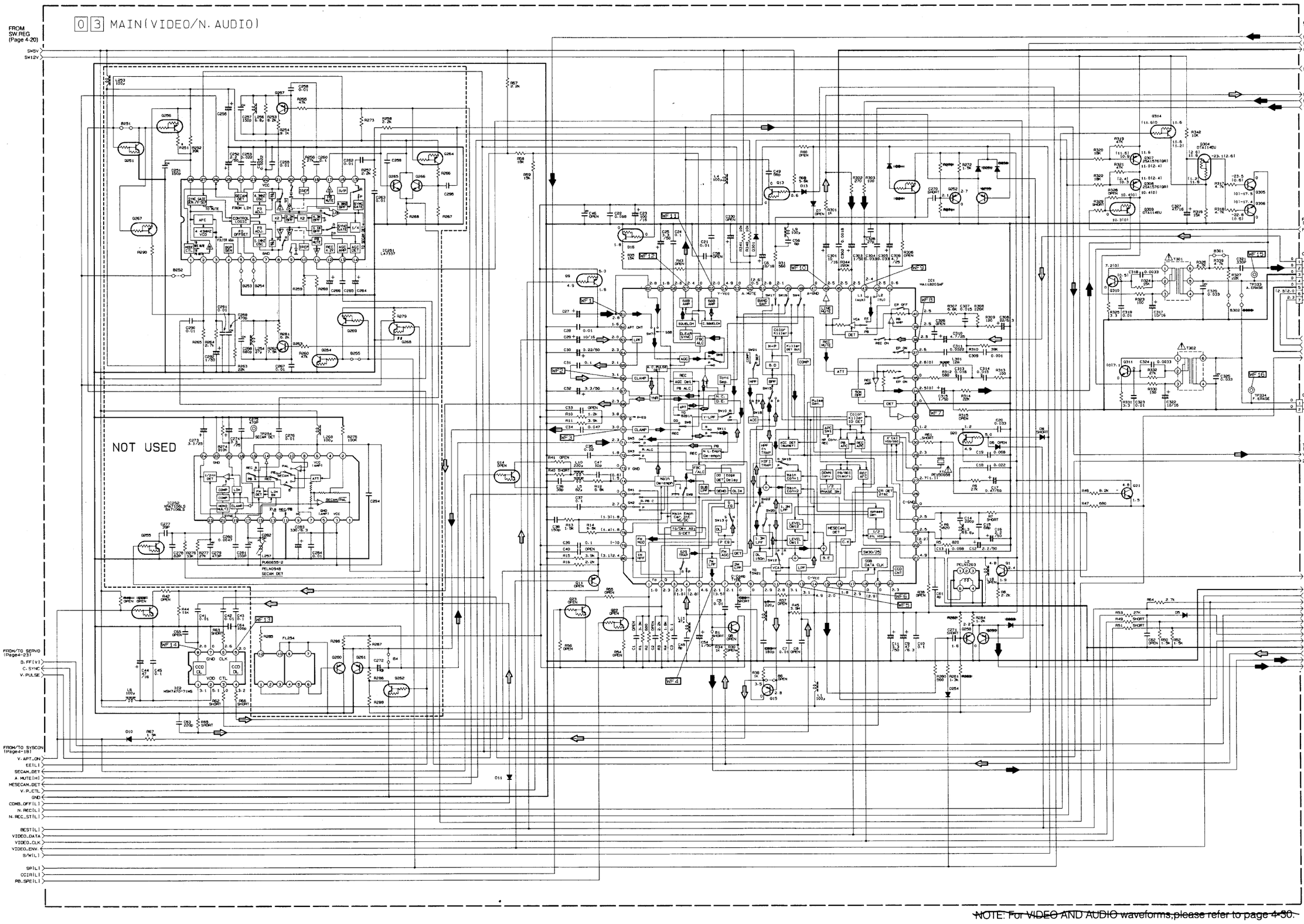
Terminal PCB Diagram



Tuner IF Diagram

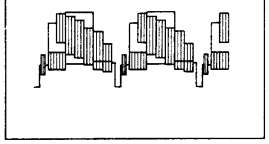


Video & Audio Diagram



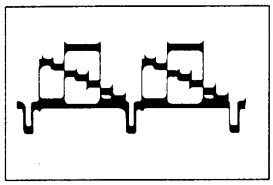
NOTE: For VIDEO AND AUDIO waveforms,please refer to page 4-30.

WF1 IC1-61



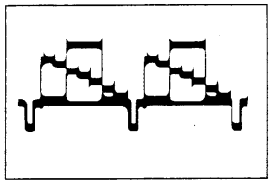
REC 0.72Vp-p
20mV/20 μsec /DIV

WF2 IC1-66



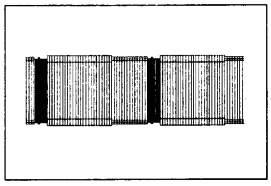
PB 0.56Vp-p
20mV/5 μsec /DIV

WF3 IC1-70



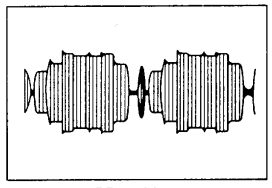
REC/PB 0.56Vp-p
20mV/20 μsec /DIV

WF4 IC1-6



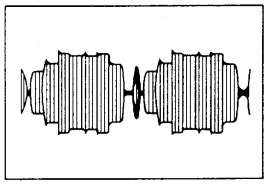
REC 0.05Vp-p
5mV/5msec/DIV

WF5 IC1-13



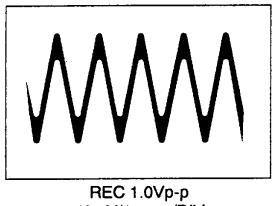
PB 0.6Vp-p
20mV/20 μsec/DIV

WF6 IC1-15



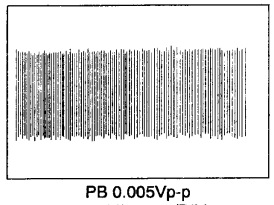
REC 0.4Vp-p
20mV/20 μsec/DIV

WF7 IC1-34



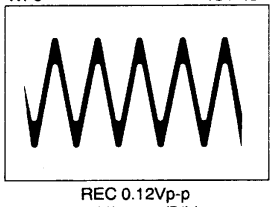
REC 1.0Vp-p
50mV/1msec/DIV

WF8 IC1-38



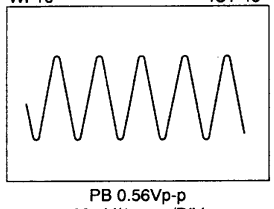
PB 0.005Vp-p
0.5mV/5msec/DIV

WF9 IC1-43



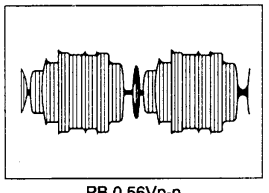
REC 0.12Vp-p
5mV/1msec/DIV

WF10 IC1-46



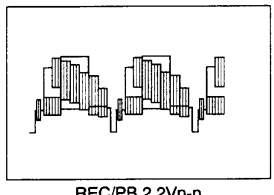
PB 0.56Vp-p
20mV/1msec/DIV

WF11 IC1-55



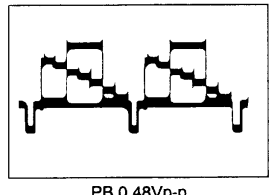
PB 0.56Vp-p
20mV/20 μsec/DIV

WF12 IC1-57



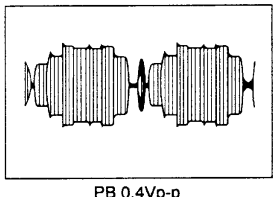
REC/PB 2.2Vp-p
0.1V/20 μsec/DIV

WF13 IC2- 5



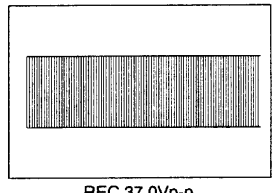
PB 0.48Vp-p
20mV/20 μsec/DIV

WF14 IC2- 8



PB 0.4Vp-p
20mV/20 μsec/DIV

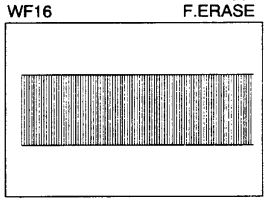
WF15 TP333 A.ERASE



REC 37.0Vp-p
1V/1msec/DIV

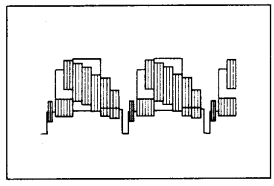
— ON SCREEN —

WF16 TP334 F.ERASE



REC 40.0Vp-p
1V/1msec/DIV

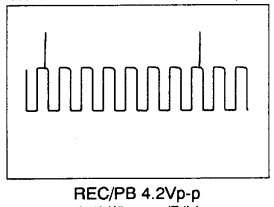
WF1 IC 1301-13,15



REC/PB 2.2Vp-p
0.1V/20 μsec/DIV

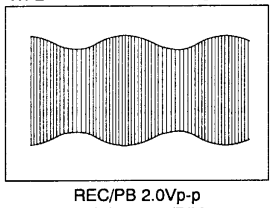
— SERVO —

WF1 IC 1101-22 D.PG/FG



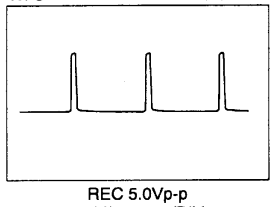
REC/PB 4.2Vp-p
0.1V/5msec/DIV

WF2 IC 1101-17 CAP.FG



REC/PB 2.0Vp-p
0.1V/10msec/DIV

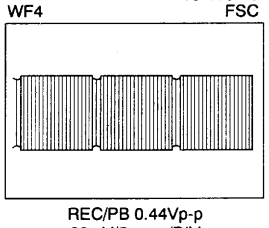
WF3 IC 1101-2 C.SYNC



REC 5.0Vp-p
0.2V/20 μsec/DIV

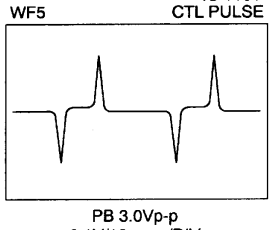
— PRE / REC —

WF4 IC 1101-3 FSC



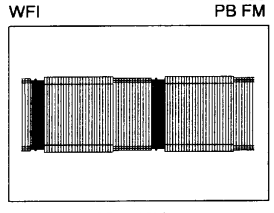
REC/PB 0.44Vp-p
20mV/5msec/DIV

WF5 IC 1101 CTL PULSE



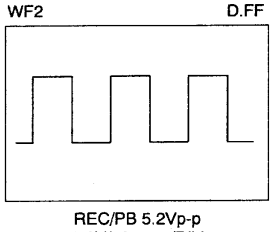
PB 3.0Vp-p
0.1V/10msec/DIV

WFI TP106 PB FM



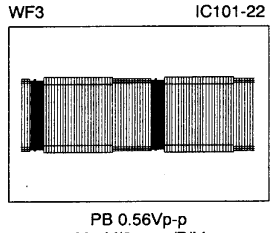
PB 0.56Vp-p
20mV/5msec/DIV

WF2 TP111 D.FF



REC/PB 5.2Vp-p
0.2V/10msec/DIV

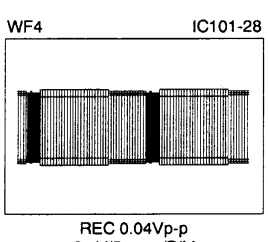
WF3 IC101-22



PB 0.56Vp-p
20mV/5msec/DIV

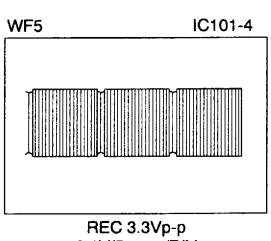
— FMA —

WF4 IC101-28



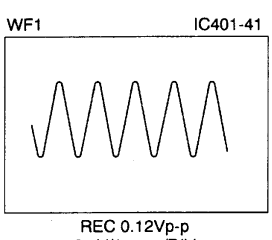
REC 0.04Vp-p
2mV/5msec/DIV

WF5 IC101-4



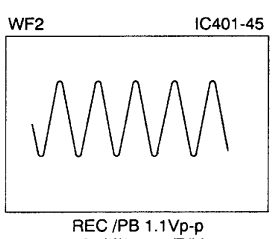
REC 3.3Vp-p
0.1V/5msec/DIV

WF1 IC401-41



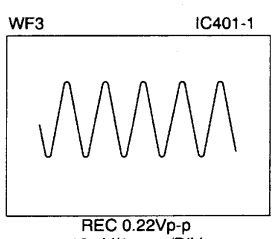
REC 0.12Vp-p
5mV/1msec/DIV

WF2 IC401-45



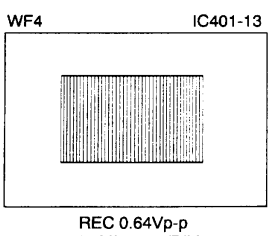
REC /PB 1.1Vp-p
50mV/1msec/DIV

WF3 IC401-1



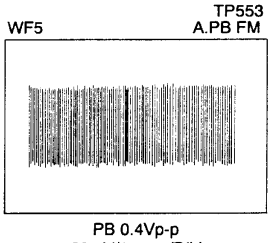
REC 0.22Vp-p
10mV/1msec/DIV

WF4 IC401-13



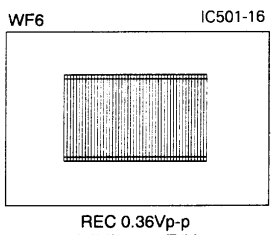
REC 0.64Vp-p
20mV/1msec/DIV

WF5 TP553 A.PB FM



PB 0.4Vp-p
20mV/1msec/DIV

WF6 IC501-16



REC 0.36Vp-p
0.2V/1msec/DIV

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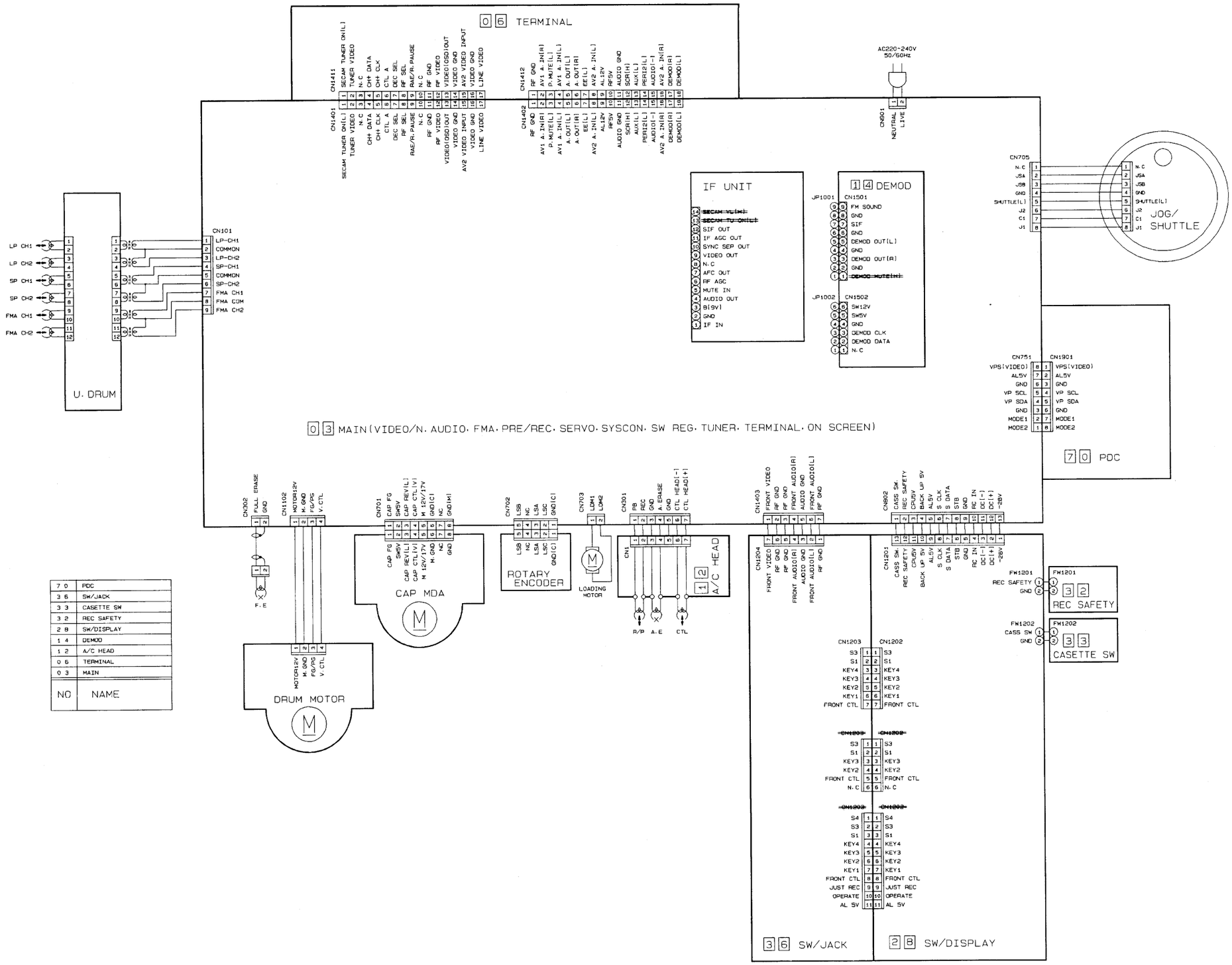
Wiring Diagram



70	PDC
36	SW/JACK
33	CASETTE SW
32	REC SAFETY
28	SW/DISPLAY
14	DEMOD
12	A/C HEAD
06	TERMINAL
03	MAIN
NO	NAME